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POPULAR HANDBOOK OF INDIAN BIRDS





BOOK OF

F.Z.S.

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ON ENLARGED



POPULAR HANDBOOK OF INDIAN BIRDS

BY

HUGH WHISTLER, F.Z.S.

TE INDIAN (IMPERIAL) POLICE

Illustrated with twenty-one full-page plates (ninety-nine figures)
of which six are coloured, and one hundred and five figures
in the text, from drawings by H. Grönvold

THIRD EDITION REVISED AND ENLARGED

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PREFACE TO THE THIRD EDITION

THE first edition of the Popular Handbook of Indian Birds was published in 1928 and exhausted by the end of 1933.

A second and enlarged edition appeared in 1935 and this too was exhausted about the end of 1940. A third edition has now been prepared, and it again has been materially enlarged and brought

up to date.

In the first edition 250 common Indian birds were described. That number was fixed arbitrarily with reference to the size of the proposed book and necessarily prevented the inclusion of many species which should have found a place. The selection of species for description was no easy task. Many, of course, came into the list without question, but after such obvious candidates had been eliminated no two persons would have agreed in their choice of the

In the second edition the number of species described at length was increased to 275, and that number has now spin been increased to 250. In the second edition, as a new feature, some ago other species were herought to the notice of the observer. More of these short paragraphs have been added in this new edition, and in consequence the reader will now find his attention drawn to some 550 Indian birds. It is hoped, therefore, that no really common or atriking belief in any part of India, other than those of very local distribution, has failed to find a place in the book. An appropriate number of new illustrations have also been added, and I hold myself fortunate that these were completed just before the lamented death of Mr H. Grönvold, as his plates and figures contributed so materially to the success of the first two editions.

Finally, the whole text has been very carefully revised in order to bring it up to date with the recent advances in our knowledge of Indian ornithology. These have been numerous of late and are largely due to the various surveys arranged by the Bombay Natural

HUGH WHISTLER

CALDREC HOUSE, BATTLE

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INTRODUCTION

(TO THE FIRST EDITION)

Before proceeding with the actual purpose of this book, which is to provide a popular and scientific, but not too technical, account of the Common Birds of India, there are a few general observations which I should like to make by way of introduction.

First to explain why the book has been written.

One of the commonest questions that is put by the new arrival in India is for the name of a book to teach him or her a little about the birds which intrude themselves on every one's notice. There are many excellent books on Indian ornithology, but the majority are either too advanced and scientific for the beginner or else too expensive. One search for a common bird in the volumes of the splendid Panna of India series is errough to send the inquiser terms in the descriptions. The few popular books that have appeared of recent years have suffered from the necessity of sacrificing fullness to cheapness, and in particular the majority lack illustrations.

Pictures are what the beginner requires; a few pictures are worth pages of description. In Europe and America, where Nature-studies have made such vast strides and have now such a general appeal, the demand has made it possible to bring out numbers of cheap

natural history books with excellent coloured illustrations. In India this is not yet possible. The area is so great and the fature and flora so rich and diverse that to describe them requires more space and wealth of illustration than in the West, while the public to purchase such books is much smaller and at present practically confined to the European population. It is, however, to be hoped that educated Indians may turn more and more to the study of the natural wonders of their land.

This book is an earnest attempt to supply a well-illustrated guide to Indian birds at a price suited to the moderate purse. That the illustrations are good is guaranteed by the name of Mr. Grönveld, who stands in the front rank of living bird-artists. That the price is moderate is due to the generosity of three gentlemen, Mr. F. Mitchell, Sir George Lowndes and Mr. Vs. Millard, who have taken the publication outside the sphere of commercial profit; whoever buys this work should realise that their public agenciates have reduced the price by a very large amount. While Mr Millard in addition has kindly undertaken the work of arranging all the details of publication, and promised to see the book through

the press.

The nomenclature follows the recognised international usage.

This may be briefly explained.

Scientific nomenclature started with the Swedish naturalist. Limneas, who inverted what is known as the Binomial System. In this each living creature has two Latin names, the first representing the genus, the second the species. To take an example from the first family in the book we have the Raven (Corvus coras) and the Common House Crow (Corvus splendom House Crow (Corvus splendom).

Now a species is a group in which all individuals resemble each other consistently except in such details as are due to age or sex or individual variation. Individuals of a species normally breed

together and produce fertile offspring.

A genus is a wider term. It embraces one or more species which, from the possession of certain characteristics, are clearly worth separating from other groups of species. The Raven and the House Crow are obviously very nearly related to each other as a compared with the Blue Magpies, but dough at the same time they are not one and the same species. We therefore place both birds together in the genus Coreus, and give them their individual specific names of cores and applicates. The Blue Magpies have each their own specific name, but their common characteristics group them toesther in another genus Urcision.

organism motion genes Ordanism. The common are similarly information with other families are combined with other families are combined with other families to form Orders; while the various Orders together make up the great class Aves. It is merely a system of classification or labels, made partly for convenience and partly to express the differences and affinities that appear amongst brink. No space has been decorded in this book to a diagnosis of the Families and Orders, but their extent has been indicated in the list of sencies that precedes

the main text.

Increased study has shown that the Binomial System alone is not sufficient to express all that is required. Abundant and videly spread species vary more or less consistently in different parts of their range, chiefly in response to climatic and geographical conditions. These geographical races or subspecies require to be recognised, and this is done by the addition of a third name after the specific name. Thus our Raven in India, which is clearly the same species as the European Raven, slightly changed by difference of habitar, is called Corosu come Insurance, to recognise the fact and to distinguish it from the typical trace Corosu convac of Europe.

The selection of the Latin name is fixed by the Law of Priority,

that the first name published for a species must be used for that species irrespective of any names that may have been given to it later. The various provisor to this rule need not trouble us here. If a species is divided into reace the first-named race is known as the typical one, and its name gives the specific name; so that the typical race may be recognised as having its second and third names the same—Coreu corax corax. The surrange given after the scientific name is that of the writer who originally described the species. If this surrange is placed within braidees it means that he originally described the species with a different generic name to that now

In the heading to each species I have given the name binomially, the races, if any, being indicated under the paragraph on Distribution. Vernacular names have not been given. In my experience published lists are of little value, as few species have really established vernacular names and local names vary from district to district. My aim throughout has been to emphasise the position of our Indian birds as part of a wider scheme, and that their range in

India is almost always part of a wider range.

This leads us antarully to the question of Geographical Distribution. No student of zoology can fail to observe that the fanus of the various portions of the world differ markedly in character in different areas. There have been many attempts to define the limits of these areas, though their boundaries must necessarily be vague. Six regions are now commonly accepted, the Holarctic, with its Platearctic and Nearctic subdivisions (extending across the whole Northern Hennisphere and including Europe, a small portion of Africa, Northern and Central Asia and North America), the Ethiopian (Africa and Arabia), the Hubin or Opened (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and China), the New Zuckerscheller (India, China, Ceylon and the Malays), the New Zuckerscheller (India, China, Ceylon and China), the New Zuckerscheller (India, China, Chi

The boundaries of the Western Palearctic subregion of the Holarctic region murch with those of the Indian region roughly along the line of the Himalayas and the Afghan and Blauchi borders; and it must be remembered that the desert areas of the Punjab, Sind and Rajputana are part of the great Palearctic desert which starts on the Atlantic coast of North Africa and reaches the heart of Chipa.

The Indian region of course needs to be further subdivided, so China and the Malays have characteristics that separate them off for India. India, Burma and Ceylon are usually considered as forming an Indian subregion, while the Himalayas are regarded as having closer affinitives with China than with the Indian plains at their base.

The student of Indian ornithology must from the beginning realise that the avifauna of his area is not homogeneous, spread over India evenly as butter on a slice of bread. He must obtain a conception of it as divided into sections. He must realise that the most comprehensive knowledge of the birds of Simla will leave him ignorant of the species that he will meet at Ootacamund, that the avifauna of the Sind desert has hardly a common feature with the avifauna of the forests of Malabar.

The most recent endeavour to express these differences is that of Blanford in the Philosophical Transactions of the Royal Society (Vol. 194, 1901, pp. 335-436). He divides India, Burma and Ceylon

into five primary subdivisions as follows :-

(a) The Indo-Gangetic plain,-This extends across the whole of Northern India from the Arabian Sea to the Bay of Bengal. Its boundaries run up the hill ranges from Karachi to Peshawar and thence along the outer spurs of the Himalayas to Bhutan and thence roughly southward to east of the Sunderbunds. The southern boundary takes a line from the Rann of Cutch to Delhi and from about Agra to Rajmahal whence it goes south to the Bay

(b) The Indian Peninsula, southwards of the above area.

(d) The Himalayas. This subdivision includes the whole area of the mountain ranges from their foot-hills up to the limit of tree-growth. Above forest limits the fauna becomes

(e) Assam and Burma.

These five subdivisions may again be further divided largely in accordance with the influence of rainfall, while along the Himalayas there are distinct altitudinal zones which affect the fauna. Those who are interested in the subject are advised to consult Blanford's paper in the original. It is too long to be quoted here, and its conclusions may have to be modified when the geographical races

of Indian birds are fully worked out. The races of Indian birds follow some fairly defined lines. Himalayan species generally have an Eastern and Western race, meeting about Nepal, the Eastern race being generally darker and smaller. In the Peninsula the races vary to some extent in correlation with the total distribution of the species. If a bird is common and widely distributed throughout India and the neighbouring areas of the Indian subregion it will often be found to have special races in (1) the semi-desert area of the north-west: (2) the humid area of Assam and the Eastern Sub-Himalayan duars and terais; (3) the heavy rain-area of the lower Western Ghats from about North Kanara to the southern limit of the Travançore ranges; (4) Ceylon; while a more generalised form occupies the intervening mass of the Peninsula, grading in turn into each race

If, on the other hand, a bird has a more limited range, the influence of these areas in the formation of races appears to be less

strong and the distribution of its races is harder to forecast. Humid areas produce dark birds, desert areas pale birds. North and west

enlarge, south and east dwarf their birds.

Finally, one must regard the influence of migration. The avifauna of India or of any square mile of it is never stationary. but changes season by season in response to the great tide of birdlife which sweeps across it with the regularity of the tides of the sea. The fundamental principle of migration is easy to understand. With the changing of the seasons a bird which summers and nests in northern latitudes is unable to find food in those latitudes in winter. It therefore moves southwards to an area that time and circumstances have fixed as its winter quarters. In the north the hird is known as a "summer visitor" and in the south as a "winter visitor," while in the intervening countries that it travels over it is a "passage migrant." The southerly route followed in the "autumn passage" is not necessarily the same as the route by which it returns north on the " spring passage."

India lies south of the great mass of Northern and Central Asia, where winter conditions are very severe following on a short but luxuriant summer. It is not strange, therefore, that a huge wave of food is so abundant. The movement starts as early as July, and reaches its greatest height in September; it crosses the Himalayas from both ends, and gradually converges down the two sides of the all the migrants have gone by the end of May.

Ceylon is one of the few countries of the world that has no

summer visitors, for it lies at the end of the migration routes through

The Indian winter, luxuriant after the monsoons, is more suitable to the needs of bird-life than the parched Indian summer. Geographical position and physical features, therefore, combine to account for one of the chief ornithological characteristics of India, that it is practically without summer visitors from beyond its borders. The few species that fall under this category are confined to Northwestern India, where they are able to take a route round the head of the Arabian Gulf to winter in Africa.

The effect of migration on status is most easily shown by an example. I will take a station in the Punjab and indicate the various

There are first of all the Resident species, which breed there and remain the whole year round, such as the Parrakeets and Babblers. A few Summer visitors arrive to breed, such as the Purple Honeysucker and Yellow-throated Sparrow. These, if they are late arrivals. dependent on monsoon conditions for their food-supply, are known as Rains visitors. But both Summer and Rains visitors have this in common, for the most part, that they are species which are residents farther south in India, i.e., they are summer visitors merely in the northern part of their range in India and not, as our summer visitors in England, arrivals from distant countries. A very numerous class is that of the Winter visitors which breed north of India altogether, like the Waders and Ducks. No winter visitor arrives from the south. There are two more large classes, the Spring and Autumn Passage Migrants, such as Rose-Finches and Red-breasted Flycatchers, temporarily abundant on their way to and from winter quarters farther south in the Peninsula and Ceylon.

It must be remembered, however, that Nature is seldom clear-cut in her distinctions, and a species may fall under more than one heading. The mass of Red-breasted Flystachers, for instance, that pass through in autumn and return again in spring, will leave a few of their numbers as winter visitors. Some individuals of another species may remain as residents while the remainder minrate.

The movements indicated above come under the heading of true migration, a tide which elsh and flows year by year in response to the annual changes of the seasons. But they are supplemented by the property of the seasons. But they are supplemented to the property of the seasons. But they are supplemented by the property of the seasons. But they are supplemented by the seasons are due to different causes. In India the most frequent causes is variation in the rainfall and its consequent effect on food-suppley. A prolonged drought will drive away the birds from a locality, good rains will fill it with birds where previously there were none.

Along the Himalayas and the neighbouring ranges there is a market, seasonal altitudinal movement, which moves the resident birds down through the various zones in response to the lowering of the snow-line. This, particularly in severe winters, sends a very of stragglers into the plains of Northern India in January and February. A plague of location of several species. And finally the rudiments of local migration may be seen in the way in which some species shift their ground in a district while breeding. This movement may be very slight, merely a natter of a few miles yet it is of interest as showing the evolution of the great migrations from hemisphere to hemisphere.

At present we have practically no detailed knowledge on the subject of migration in India, whether true or local; records and observations on it are badly needed.

Hitherto Indian ornithology has fallen into very definite periods. The first period revolves around the pioneer work by Hodgson, Jerdon and Blyth, and found its expression in Jerdon's *Birds of India*, published in 1862.

The second period is dominated by Hume (also the founder of the Indian Congress) who directed and marshalled the labours of a number of notable workers. This period found its fitting expression not in a single comprehensive work but in the packed and miscellaneous volumes of Stray Feathers, a periodical which appeared in parts from 1872 to 1888, With 1889 appeared the first volume of the Fauna at British

India, Birds, by Blanford and Oates, followed at intervals by three other volumes. This work completely dominated Indian ornithology down to about 1922.

In 1022 Mr Stuart-Baker produced his first volume of the second

edition of the Pausa. With this has opened the fourth period of Indian ormitology, which will be memorable for its introduction of the trinomial system. Its progress is still in the moulding, and I can only hope that this book of mine will help more than one beginner to take his share in the advancement of Indian ornithology. The day is now over in which it was necessary to collect large

series of skins and eggs in India. Enough several collecting has been done; concentration on filling in the gain in our knowledge is now needed. Those who skin the his he work should first familiarize themselves with the skin the skin the skin the skin through through the skin through through the skin through the skin through through the skin t

The wonderful ordinans of India is still unspoil; and almost in its curious and appreciate it while we may and entirety. Let us chronicle and appreciate it while we may and entirest to that steps to preserve it may advance pair passus with the destructive influences. These have already started. The irrigation of vast tracts has already made considerable changes in the fusars, the interesting desert forms giving place to less specialised and widely common birds. With the passing away of the Arma Act one of the

greates harriers to the wasteful destruction of bird-life by ignorance and greed has been boshed adown, at the very moment when the and greed has been boshed adown, at the very moment when the most open of the country by the motor-car has lessened the number of natural sanctuaries. So in return for the interest of your study of the Indian avifuna, endeavour to protect it and awaken public oninion to the task.

In conclusion, I have to acknowledge my indebtedness on many sides in the writing of this book. While I owe something directly or indirectly to every naturalist who has worked in India, my obligations are very deep to the authors of both editions of the Fanua series, Messrs Blanford and Oates and Mr Stuart-Baker. Mr N. B. Kinnear of the British Museum has given me much valuable advice and encouragement. And especially I owe much to the help and enthusisam of Dr Claud B. Ticchurst, who has kindly read through the text of the book in order to ensure its accuracy.

HUGH WHISTLER



The Common Mynah (4 nat. size)

POPULAR HANDBOOK OF INDIAN BIRDS



Fig. 1-Raven

THE RAVEN

CORVUS CORAX Linna

Description.—Length 24 inches. Sexes alike. Entirely black, glossed with steel-blue, purple and lilac.

Iris dark brown; bill and legs black.

The feathers of the throat are prolonged into conspicuous

blackles.

Field Identification.—Plains of North-western India. Distinguished from all other Crows by the large size, complete blackness, the throat hackles, and the distinctive call-note. Only likely to be confused with the Jungle Crow, but both species do not usually occur in the same

Distribution.—The Raven is found in almost every part of the Northern Hemisphere, in Europe, Northern Africa, Asia, and Northern Hemisphere, in Europe, Northern Africa, Asia, and is divided into several races distinguished by size and the shape of the bill. We are only concerned with one race, C. e. suskcarax, which is the resident bird of Western Asia, Turkstan, Balachistan, and North-evestern India, though it appears to some

extent to be locally migratory. In India it is found in the Punjah, North-west Frontier Province, Sind, and the desert portions of Western Raiputana. No Raven occurs in the Himalayas proper until the Tiblean tracts of their northern face are reached, and there in the barron wastes above 10,000 feet is found the so-called Tibetan Raven (C. e. tibetanus), a huge bird, perhaps identical with the

Habits, etc.—In North-western India the Raven is a very abundant species in the drier and more barren portions of the plains and about the low rocky hill ranges which crop up here and there. In the irrigated and better cultivated tracts it is scarcer, as also in the more thickly wooded districts.

Although while nesting it prefers solitude, at other times it is distinctly social, and fifteen or twenty brids may often be seen together on the outskirts of villages, towns, and camps, marching seadarely about the ground, turning over and examining the refuse of man. For in India the Raven is a common scavenger, bold and diasolute as any Crow; though it retains when need arises all the wariness that in England is associated with a scarce and shy bird that avoids the haunts of man. It is particularly common about

The food is very varied; in addition to the scraps collected in the course of its scavenging the Raven does a certain amount of damage to crops, for instance cutting off and carrying away whole heads of millet, and a pair are generally found with the Vultures at every carcass.

The ordinary call-note is a frequently uttered deep praish, praish. The flight is strong and straight, and the massive head and beak project compicuously in advance of the wings. The birds seem to pair for life, though many pairs collect together where food is plentiful. Like the other Crows the Ravens room in companies, often fifty or sixty together, flighting to the selected spot towards the fall of dulask, livine fast and moderately low over the ground.

The breeding season lasts from December to March, though most eggs will be found in January and February.

The nest is a large, stout structure of sticks with the cup thickly lined with rags, wool, hair, and similar rubbish. It is placed either in the fork of a large tree, often close to a well or house, or on the ledges of rock and clay cliffs. The birds often exhibit a tendency to attack the climber who sees up to secure their eggs.

The clutch varies from four to six eggs

The egg is a moderately broad oval, considerably pointed towards the smaller end; the shell is close and firm, with only a slight gloss. The ground-colour varies from greenish-blue to dingy olive or pale stone-colour. The markings are blackish-brown, sepia, olive-brown,

and pale inky-purple, distributed in spots, speckles, blotches, and streaky clouds, the eggs in one clutch usually being all of one type, though there is much variety between different clutches.

In size the eggs average about 1.94 by 1.31 inches.

THE JUNGLE CROW

CORVUS MACRORHYNCHOS Wagler

Description.—Length 17 inches. Sexes alike. Entire plumage black with a dark blue or purple gloss.

Iris dark brown; bill and legs black

Field Identification—A typical Crow, entirely black, and intermediate in size between the ordinary House Crow and the Raven; to be distinguished from the former by the absence of any grey on the hind neck and breast, and from the latter by the smaller size and the difference in call care care, that of the Raven being a hourse back prath, prath. Usually graptions, except at nest.

Brithshim. - India, Burma, Ceylon, extending to South-cast Asia. It is divided into various races which are separated on minor points of size and coloration of the base of the feathers, and are distinguished with difficulty except in a series. There races concern us. C. m. intermeditus is found along the whole length of the Himalayas from Afghanistan to Bluttan and is the familiar Crow of all the Himalayan hill stations from Gulunug to Nepal. It occurs from the foot-bills up to 17,000 feet. The smallest race, occurs in Ceylon and the whole of the smallest race, occurs in Ceylon and the whole of the smallest race and the state of the smallest race and the small of the smallest race and the small of the smallest race are strictly resident and they may prove to be races of the Carrison Crow (Coreux corne) of Europe, which certainly has a race C. c. cristalist in Ladakh and Baltistan. The Rook (Coreux praiglessy) which occurs in North-west India in winter in vant numbers may be distinguished by its finer, more pointed beak and the bare while scalenous grades.

Habits, etc.—The Jungle Crow is, as its name implies, and in contradistinction to the House Cown, a brid of the forests and jungles rather than of the human and thoughout the Peninsula of India; though it often the state of th

Crow as the common scavenger round houses, though it is never as much at home in the bazaars as is the smaller bird.

Although not actually nesting in rookeries, the Jungle Crow is a highly gregarious species, numbers feeding in company or collecting together at the scene of any object of interest, whether food to eat, a fox or bird of prey to mob, or a disturbing human element to swear at. Large numbers collect to roost in special patches of forest, though never so many together as in the case of the House Crow. In the hills this Crow is very fond of soaring and circling at a great height in the air and twenty or thirty often do this in company, exhibiting a complete mastery of all the arts of flying.

Like other Crows this species is omnivorous, scraps of human food, refuse, flying ants, fruit, berries, small mammals and birds, insects, carrion, all are welcome to it; while it is particularly destructive to the eggs and young of all birds. I have seen it settling on the packs of mule trains crossing the high passes, travelling with them and tearing holes in the packs to get at the contained corn. Its voice is not disagreeable, the ordinary call being a variable

caw rather reminiscent of that of the English Rook, sometimes harsh, sometimes almost melodious in tone, and very often distinctly like the quack of a domestic duck; a harsh allah or ayah is also uttered, and in addition as it meditates on a shady bough during the heat of the day it indulges in a succession of amusing gurgles and croaks, As I write, several are conversing in the trees outside my room, the sound recalling memories of early spring in England, with swaying elms and rooks preparing to nest.

The various races of the Jungle Crow throughout our area agree for the most part in laying their eggs from March to May, but in the plains a few nests will be found with eggs as early as the middle of December.

The nest is a large, moderately deep cup, composed of twigs and small sticks, lined with hair, dry grass, wool, coco-nut fibre and similar substances. Some nests are massive and well built; others are somewhat sketchy affairs.

In the Himalayas they are often placed in deodars or other species of pine, while in the plains mangoes and tamarinds are said to be preferred; but with these reservations, the nest may be built in any species of tree, and it is often surprising how well so bulky a structure is concealed from a casual glance. The tree selected is occasionally in the midst of a bazaar or garden, but most pairs build away in the jungle but in easy reach of some village.

The normal clutch consists of four or five eggs, but occasionally six are laid.

The eggs are of the usual Crow type, moderately broad ovals, considerably pointed towards the smaller end; the texture is firm with scarcely any gloss. In colour they are rather variable: the ground-colour may be pale greenish-blue, pale blue, dingy olive, or brown, and pale inky-purple, and these take the form of speckles. spots, blotches, and streaks, thinly-imposed in some eggs and in others so numerous and heavy as almost to conceal the groundcolour of the egg. There is, however, usually a marked resemblance between the eggs in one clutch.

In size they average about 1.70 by 1.18 inches,

Description.-Length 18 inches. Sexes alike. A broad collar round the neck, including the nape, upper back and breast, light ashyof plumage black, highly glossed with purple, blue and green. The

Iris dark brown; bill and legs black.

Field Identification.-A typical Crow, glossy black with a grey collar and breast. Always in company with man. It is sometimes confused with the Jackdaw (found only in Kashmir and the North Punjab), but the latter is easily distinguished by smaller size, lesser amount of grey in the plumage and by the white iris.

Distribution.-From 4000 feet to sea-level throughout India, Burma, and Ceylon and extending to Siam and Cochin-China. The House Crow is divided into several races which are distinguished by slight variations in the shade of the non-black portions of the

plumage. A strictly resident species. The typical race is found throughout India, except for Sind and the North-western Punjab to Kashmir where it is replaced by a very pale race, C. s. zugmayeri, which also extends to the Mekran Coast and South-eastern Persia. Darker races, C. s. insolens and C. s. protegatus, are found in Burma and Ceylon respectively.

Habits, etc.-The House Crow shares with the Mynah the distinction of being the most conspicuous bird in India. The man are the haunts of the House Crow and with him it is most numerous in cities, but the jungle and the desert suit it equally well

if man is there. Miles of barren plains may be bare for weeks of both Crows and men, but no sooner is the solitude invaled prorough huts or tents of some wandering tribe than will appear some half-dozen Crows to keep them company. Normally it is a plains bird, but its range is steadily extending into the hills following the



Fig. 2—Common House Crow (1 nat. size)

railway and the cart-road, until already it may be found up to 6000 or 7000 feet both in the Nilgiris and in the Himalyas. But its hold at these altitudes is precarious and would cease at once were the station abandomed. It probably is unable to withstand both the lower temperature of the Himalayas and the comparative abundance there of the stronger Jungle Crow.

This Crow is highly gregarious, and this trait is nowhere more clearly demonstrated than at the roost. Many thousands of birds sleep together in company in a selected patch of trees, often acres in extent; and the morning and evening flight from and to the roses is a most consplicuous event, as an unending stream of brits acres or departs. In the morning the brits sleave in a body, hangy and impatient for food, and the flight is soon over, but in the evening their arrival is much more protracted. An hour or two before dash, their arrival is much more protracted. An hour or two before dash their arrival is much more protracted. An hour or two before dash their arrival is not home protracted. An hour of an unbroken line of briefs extends across the sky, till darkness falls and puts an end to the unceasing clamour that accompanies every operation of this bird's fife.

During the flight small parties have the habit, so often seen amongst Rooks in England, of swirling suddenly down from a height in the sky almost to the ground. The roosting-places are always littered with the remains of dead Crows, and their mortality is heavy, partly no doubt from disease and partly from the depredations of Peregrines and Eagle-Owls. These roosting flights show no apparent diminution even during the breeding season, and this is due to the fact that this species does not breed during its first year. While not nesting in colonies after the fashion of the Rook, the view of the colonies are the fashion of the Rook, the view of the colonies are the salience of the colonies.

Emiliarity with man has made the House Crow bold and thievish to a degree. It sides into rooms, alert and keep, ready to retreat at the least alarm, and with a audden bounce and dash removes food from the table; it robs the shops in the bazars if they are left unattended for a moment; it snatches sweetmeats off the trays of the vendors at railway stations. Yet with all this familiarity and boldness it retains the waitness and sugarity of the family and is quick to take

a hint of real danger and evade it.

And not only man suffers from this impudent Crow; it mobs birds of prey, more aspecially the Covle and Eagles, on occasions actually buffering them; and it was seen Volumes sitting gorged on the ground much worth of the control of the Covle of Cover of C

does, substituting its own eggs for those of the Crow and making

the latter bring up its young.

will eat, and innumerable things that he will not.

The ordinary call is a cawing note rather softer in tone than that

of the larger Crows. The breeding season is very regular in the North-west, eggs being laid from the middle of June till the middle of July. In the rest of India numbers also lay in April and May, and occasionally nests are found in November, December and January.

The nest is built in a fork of a tree, and is a shallow cup of sticks. sometimes neat and well made, sometimes sketchy and ragged; it is lined with grass roots, wool, rags, vegetable fibre, and similar miscellaneous substances. Instances are on record of nests built partly or

The normal clutch consists of four or five eggs, but six or seven are occasionally met with. The egg is a broad oval, rather pointed at the smaller end. The texture is hard and fine and there is a fair gloss. The ground-colour is any shade of blue-green, and is blotched. speckled and streaked with dull reddish-brown, pale sepia, grey and

In size the eggs average about 1.45 by 1.05 inches.

THE JACKDAW

CORVUS MONEDULA Linnaus

Description .- Length 13 inches. Sexes alike. The whole upper plumage, wings and tail glossy black; a broad collar from the sides of the head round the back of the neck dusky grey, becoming so pale in parts as to be almost white; chin, throat, and fore-neck black; remainder of lower plumage dull slaty-black.

Iris whitish; bill and legs black.

Field Identification.-Extreme North-western India and Kashmir. Distinguished from the House Crow by the smaller size, the fact that the grey is confined merely to a collar, the white eye, and the very musical call.

Distribution.-The Jackdaw is widely distributed in Europe, in Algeria, and in parts of Northern and Western Asia. Of its races we are only concerned with C. m. monedula, which apparently breeds from Scandinavia and Russia to the Yenisei and south to Persia, Afghanistan, and Kashmir. In winter numbers appear from the middle of October to the beginning of March in the North-west Frontier Province west of the Indus, and in the Punjab districts along the base of the North-western Himalayas

The traveller to Baltistan and Ladakh will find the Magpie (Pica tical common in the sparse groves in the valleys and he will be agreeably surprised at its tameness compared with the persecuted

English bird. It is also found in Baluchistan.

Habits, etc .- No one who has visited the Vale of Kashmir can have failed to notice the Jackdaws, which are extremely common there all the year round, and with their cheerful, familiar calls largely contribute to the extremely English air of the European quarters of Srinagar. Great numbers live in the trees and buildings all round Sringgar, feeding in the fields and on the grassy lawns. and becoming as tame and impudent in their behaviour as the House Crow is in the plains. These birds roost in the willows of

the Dal Lake, and the morning and evening flight of the lackdaws from

and to their dormitory is one of the ornithological sights of Srinagar. In winter when it arrives in the Punjab the Jackdaw is found in flocks which associate with the immense flights of Rooks (Corvus frugilegus) that appear about the same time and in the same localities. The flight is strong and fairly fast, but the Jackdaw has rather quicker wing-beats than the Rook and can also be distinguished in the air by its smaller size. The call is more musical than that of most Crows, being a melodious Jack and cae, ringing with cheerfulness and well-being; these calls are responsible for the English name, the first syllable also exemplifying the English practice of personifying familiar species, as in Magpie and Jenny-Wren. The whole demeanour of the bird is pert and knowing, and it makes

irresistible attraction which small bright articles have for the Jackdaw often makes it a nuisance about a house when tame enough to be allowed out of its cage. In Kashmir the breeding season is from April to June. The nest is a massive cup of dirty wool, rags, and hair on a foundation and trees. Numbers of pairs breed in colonies wherever suitable

a delightful pet, some individuals learning to talk; though the

nest-holes are available. The clutch consists of four to six eggs.

The egg is an elongated oval, somewhat compressed towards the smaller end; the shell is fine and stout but there is only a faint gloss. deep blackish-brown, olive-brown, and pale inky-purple; these markings are sometimes fine and close, at other times bold and thinly set, but on the whole the eggs of the Jackdaw are more lightly marked than those of most of the family of Crows.

In size they average about 1.40 by 0.98 inches.

THE VELLOW-BILLED BLUE-MAGPIE

UROCISSA FLAVIROSTRIS (Blyth)

Description.—Length a6 inches, including tail of about 18 inches, Sexes alike. Head, neck, and breast black, with a white patch of the head, neck, and breast black, with a white patch with the property of the property of

Iris bright yellow; bill waxen yellow; legs bright orange-yellow, Field Identification.—Purely Himalayan form; in noisy parties amongst trees. A conspicuous long tail, greatly graduated, and at the end drooping in a graceful curve. In jungle appears dull greyishblue, with white under surface and white tips to tail-feathers.

Distribution.—The Yellow-billed Magpie is found throughout the Himalayas from Hazara to the Brahmaputra. It is divided into two races. Of these U. f. cicullata is the better known and is found from the Western boundary of the range to Western Nepal, being a common species about most of the hill stations of the Theorem of the Western boundary of the range too to 10,000 feet. The typical form is found from Eastern Nepal, some is diditifying the state of the Western School form is found from Eastern Nepal (in San is did lived) higher than that of the Western form, as it seldom occurs as low as 6000 feet. A resident species, but during the winter months it usually deserts the higher parts of its summer 2007.

From Simla eastwards the closely allied Red-billed Blue-Magpie (Urosiza melancephal) is often found in the same areas as the yellow-billed species; it is particularly common about Muscorie, Tehri-Garhwal, Kumaon, and in Nepal, and may be easily distinguished by its red beak and the greater extent of the white nane-patch.

The lovely Green-Magpie (Cissa chinensis) is found in forest along the lower Himalayas from the Jamma castwards and in parts of Assam, Eastern Bengal and Burma. It is brilliant green in colour (which has a tendency to fade to blue) with a black band through the eye and believe and the lower of the lower

Habits, etc.—The Blue-Magpies are, as may be judged from their bandsome talks, essentially arboreal birds; though, while they are most usually to be met with in heavy jungle areas, they also venture out into the tree amongst cultivation, and at times on to bare mountain fides at high elevations. They frequently feed on the ground and then adopt a curious bopping gain, with the sal held high to prevent it coming into contact with the ground. They here in parties of seven or eight birds and are very partial to particular localities, so that once a party has taken up its abed in any particular nullah or patch of forest it will generally be found there. They are very active, (hijn incessantly from bough to bough and not heteistage to launch high into the air when flying from ridge to ridge; a party of these birds crossing a nullah out of gun-shot above one's head is a curious sight, with their long tails waving in the air and the light shining through the feathers. The flight is rather slow, laboured



Fig. 3-Yellow-billed Blue-Magpie († nat. size)

and undulating once the bird comes into the open. The food consists of small mammals, the eggs and young of other birds, insects, and wild fruits and berries of various kinds. This bird is very noisy; the ordinary call is harsh and grating, but it has a wide variety of notes, some of which are meldious enough.

The nest is built in a fork of a tree, usually of moderate size but with dense foliage, and is difficult to find. It is a rather large and roughly constructed cup of sticks with a lining of fine grass, roots and fibres.

The clutch consists of three or four eggs. The ground-colour varies from a pale, dingy yellowish-stone colour to a darkish rather reddish-stone colour, and there is very occasionally a faint greenish

tinge. The markings consist of small specks, blotches, streaks, and mottlings of various shades of brown, sienna or purple, and they generally tend to collect in a cap or zone about the broad end of the egg.

The egg measures about 1.20 by 0.92 inches.

THE INDIAN TREE-PIE

Description.-Length 18 inches. Sexes alike. The whole head and neck with the breast sooty brown; remainder of the body plumage bright rufous, darker on the back; wing-coverts greyish-white; wings dark brown, with a large conspicuous greyish-white patch on the sides extending almost their whole length when closed; tail long and graduated with the central feathers elongated, ashy-grey, each feather

Iris reddish-brown; bîll slaty horn-colour, albescent at the base;

legs dark brown, claws horn-colour.

Field Identification.-A bright rufous magpie with sooty head and neck, and impressions of grey, black and white in the wings and tail; a strictly arboreal garden bird, usually in pairs, with a very musical

Distribution.—The whole of India and Burma from the Indus and the Lower Himalayas to Travancore, and from Assam to Tenasserim

and Siam. A strictly resident species.

Like most widely-spread and common birds the Indian Tree-Pie is divided into several races, distinguished by size and the relative depth in colouring of the body plumage. There is much intergrading between them, and authorities in consequence differ as to their number and distribution. The typical race is found in North-east India including the outer fringe of the Himalayas from Nepal to Assam and Central India, being replaced by D. v. pallida in the North-western Himalayas, North-west Frontier Province, Sind, Punjab, and Rajputana. A small dark race, D. v. parvula, occurs in the rain area of the Western coast from South Kanara to Cape Comorin, while a small pale race, D. v. vernayi, occurs in the rest of Southern and Eastern India up to the Godavari River. Although essentially a bird of the plains of Continental India this Tree-Pie is found in hill country up to about 5000 feet, including the outer fringe of the Himalayas.

Two closely allied species, the Himalayan Tree-Pie (Dendrocitta formosæ) and the Southern Tree-Pie (Dendrocitta leucogastra), are common in the Lower Himalayas and from Mysore to Travancore respectively. The former is grey and brown with no rufous in the plumage except below the base of the tail. The latter has a black mask in sharp contrast to the white collar and under parts. Habits, etc.-The Tree-Pie is, as its name denotes, essentially

arboreal, and it is practically never seen to visit the ground; though I have known it come into a verandah and climb about the chicks in order to catch the yellow wasp which habitually builds its nest in houses. It also climbs about trunks and branches of trees, hanging



on with the claws and partly supported by the tail as it searches the forest as in open country where large trees grow in clumps and avenues, and it is also very partial to gardens. But although it is in consequence common in the immediate vicinity of man it is a somewhat shy bird, living amidst the thicker foliage and usually only seen in glimpses as it flies from tree to tree in front of the observer. It is found in pairs or small parties. The flight is dipping, the bird alternately flapping the wings for several beats and then gliding with them stiffly outspread. The food consists of fruit, berries, insects,

caterpillars, lizards, and small snakes, and this bird has the reputation of being one of the most destructive enemies in India to the eggs and young of other species.

The ordinary call is a loud and most melodious kokli or googeley, the is one of the familiar bird-notes of India. But it has a variety of other notes, some quite charming and soft, others less pleasant, particularly a raucous scolding note which is as ugly as the first is

particularly a raucous scolding note which is as ugly as the first is melodious.

The breeding season extends from February until the first week

The breeding season extends from February until the first week in August, but the majority of nests will be found in April, May, and June.

The nest is placed in trees or large bushes, in a fork usually towards the top of a tree. Mango and babool trees are most commonly favoured, though sheeshum and neem trees are also offer a large tree of the state of the state

The normal clutch is four or five eggs in the north, and generally two or three in the south.

The eggs are typically somewhat clongated ovals, a good fedipointed towards the small end; there is sometimes a slight gloss. In colour they are very variable, though there is always a family resemblance between the eggs composing one clutch. There are two leading types of coloration; one pale greenish in ground-colour with blotches and spots of light and dark grey brown, somewhat resembling the eggs of the Grey Shrike; thelter pair cedish-white or salmon-colour with blotches of reddish and dark brown and underlying markings of iliac and neutral tint, similar in type to the eggs of the Drongos.

In size they average about 1.17 by 0.87 inches.

THE BLACK-THROATED JAY

GARRULUS LANCEOLATUS Vigors

Description.—Length 13 inches. Seves alike. Top and side of the head black; chin and throat black with broad white streaks, the black ending in a patch of iron-grey; body plumage vinous-grey, brighter towards the tail; vings black, closely barred with bright blac, a black patch on the coverts being bordered outwardly by a white patch; insermost flight-cleathers vinous-grey with a black and

a white band at the end of each feather; tail black, broadly tipped with white, all but the outermost feathers closely barred with bright blue.

Iris reddish; bill steely slate, darker at tip; legs steely grey, claws darker.

The head is conspicuously crested, and the throat-feathers are ong and pointed. The tail is long and slightly graduated.

Field Identification.—West Himalayan form. A noisy active bird found in parties in trees. The black crested head, with untidy



Frg. 5-Black-throated Jay (nat. size)

white streaking on the throat, and the bright blue and black barring on the wings and tail contrast sharply with the nondescript body plumage.

Distribution.—The Suliman Hills; the Western Himalayas from Hazara and Chitral to Nepal, breeding from 5000 to 8000 feet, and occasionally higher to 10,000 feet, and in winter descending to 3500 feet. A resident species with no races.

The Himalayan Jay (Garrulus bispecularis), sometimes considered a race of the familiar English bird, is also resident throughout the Himalayas. It lacks the black head and crest of the Back-throated Jay, and is brighter, more rufous in colour with a squarer tail.

Loud harsh calls also draw attention to the Nutcracker (Nucifraga caryocatactes), another Himalayan species of Crow, which feeds

largely on pine seeds. It is dark chocolate brown, spotted with white. The white of the outer tail-feathers is conspicuous in flight,

Hubits.—The Black-throated Jay is a familiar species in the outer ranges of the Western Himalayas where it comes freely into the various hill stations. When in pairs in the breeding season it is quiet and secretive in habits until disturbed in the neighbourhood of the nest when it immediately becomes excited and noisy, screaming and chattering at the intruder. At other seasons it is found mostly in parties of four or five birds which in winter often combine into considerable flocks, up to forty individuals in number, and these sometimes join forces with the Himalayan Jay and the Yellow-billed Blue-Magpie. These parties keep to trees, whether in forest or in the neighbourhood of houses and cultivation, and their whereabouts is sooner or later betrayed by the harsh schach, similar to the call of the English species. The food consists of grubs, caterpillars, beetles, insects, fruits, berries, seeds and the like, and some of it is taken on the ground.

From the hostility that this Jay awakens in other species in the breeding season it is obvious that they consider it a danger to their

eggs and young.

The breeding season extends from the middle of April to June, most eggs being found in May.

The nest is a moderately shallow cup built of slender twigs and sticks and lined with dry roots and fibres, particularly the black horsehair-like rhizoids of mosses. It is placed in trees or thick bushes, never at any very great height from the ground. An upper fork of a small sauling affords, a very favouries situation,

The clutch varies from three to six eggs, four or five being the usual number. The eggs are somewhat lengthened ovals in shape, and there is little or no gloss. The ground-colour varies from brownish-stone to pale greenish-white, and it is very minutely and feelly freekled and mottied all over with pale sepis-brown. There are usually a few dark brown hair-like lines, more or less zigzag, about the larger end.

The eggs measure about 1.12 by 0.85 inches.

THE CHOUCK

Pyrrhocorax pyrrhocorax (Linnæus)

Description.—Length 17 inches. Sexes alike. The whole plumage glossy black.

Iris dark brown; bill coral-red; legs dark coral-red; claws black.
Bill slender and curved and the feathers at the base of the bill
short and dense.

Field Identification.—Himalayas and Baluchistan. A very graceful black Crow with a pleasant call which is immediately identified by the coral-red bill and less.

The slightly smaller Alpine Chough (Pyrthocoras grazulus) with shorter yellow bill and red legs has roughly the same distribution in our area as the Chough. The traveller in Lahul and Ladakh will find it a bold sexwenger about his camp. It is commonly stated these two Choughs are always found in separate valleys, but this is not a fact.

Distribution.—The Chough has a very wide distribution from Europe and Africa to Chian, monthy as a mountain bird. We are concerned with the race P. p. himalayamus, separated from the typical race on its slightly larger size, and this is found in North-eastern Baluchistan, Chitral and the Himalayas from Hazara to Bhutan, It is a bird of high elevations, seldom breeding below 8000 feet, most commonly in the zone from 10,000 to 12,000 feet, and sometimes up to 15,000 feet. It has been recorded up to 20,000 feet in summer, an elevation attained by very few species. In winter, stress of weather sometimes drives it down as low as 1000 feet.

Habiti, etc.—Except in Baluchistan, where the Chough visits the Opertu Alley in winter, this delightful bird will only be met by the observer who leaves the ordinary Himalayan stations and travels a little further late the hills. On the outer ranges he will meet it on the Pir Panjal and the Duala Dhar, but for the most part he must enter the Main Himalayan range before he can expect to see its buyant flight and hear its cheeful call. Once in its haunts, he will find the bird common enough in flocks and pairs and parties sometimes in the same valleys and in the same ranges as the Alpine Chough and sometimes alone. Its local distribution is a little erratic. In some places it is common, in others it is apparently absent and the reasons

The Chough usually roots and breeds in precipitous cliffs though in the Chumbi Valley and in Their it also uses the numerous holes in the walls and under the flat roofs of the houses in the Tibetan villages. It feeds for the most part on the alpine pastures where it probes and digs in the soil or scatters the yak dung for the beetless and their larve, the wireworms, the insects and the mall seeds which form its food. Further down it takes the berries of various mountain banks such as the Lafakh thour (Hippophae rhamsade) and robs the tillage of its sparse supplies of corn. As a rule it is far from shy though it is not the shameless excentege of the camp like its counts the Alpine Chough.

This Crow is an excellent flier. A party will often obviously fly for pleasure, playing and circling in the air currents in front of the

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cliffs where they live, or mounting high to soar in the sky till bird after bird comes plunging down again with swift slanting flight, closing the wings almost to the body.

The ordinary call is a melodious kew or jack much like that of the Jackdaw; another note is a high-pitched squeaky chee-o-kah and the alarm is a clear quoick or kor-quick. The voice carries far in the mountain valleys and draws attention to birds above almost out of sight.

Nidification begins in March and eggs are to be found in April and May. The neat is built in a crevice of a precipice or a hole in the roof of a hill cave and is usually quite inaccessible. In Tibetan villages it may be built in a hole in a house. The nest is made of sticks and twiss and the cup is lined with wool, though some nests consist

merely of a pad of wool.

The clutch consists of three or four eggs. They are rather variable in size and shape but are typically a moderately clongated oval, slightly compressed towards the small end. The shell is tolerably fine and has a slight gloss. The ground-colour is white with a faint creamy tinge and the whole egg is profusely spotted and streaked with a pale, somewhat yellowish brown and a pale purplish grey. The markings are most dense at the broad end.

The egg measures about 1.75 by 1.20 inches.

THE INDIAN GREY TIT

Parus major Linnæus (Plate ii, Fig. 5, opposite page 24)

Description.—Length 5 inches. Sexes alike. Head, neck, broad and a broad line down the centre of the abdomen glossy black; a conspicuous white patch on the check and a fainter one on the nape; remainder of under parts white tinged with vinaceous; remainder of unper parts blaish ably-grey, with a white bar across the wing; at all black and blaish ably-grey, with a large amount of white on the

Iris dark brown; bill black; legs slaty plumbeous.

Field Identification.—A typical Tit; bluish-grey above and whitish below, with black head, neck and broad abdominal stripe, and a white cheek-patch. Purely arboreal, generally single or in pairs.

Distribution.—The Great Tit (Parus major) is an interesting species of wide range. It extends throughout the whole of Europe, Northwest Africa and the greater part of Asia to Japan and Southern China. But as is to be expected with such a wide range the species has been divided into a great number of geographical races or sub-species.

These fall into two main groups; the European group with green backs and yellow under parts (exemplified by the familiar Great Tit of England), and the Asiatic group with grey backs and whitish or buff under parts.

To this latter group belong our Indian birds, and they fall again into several races, which differ from each other in the depth and purity of their colour and in the relative amounts of black and white

on the tail-feathers.

P. m. cachmirenis occupies the Western Himalayas from Kashmir to Gahrwal, visting the Punjab plains in winter, P. m. mjahemis extends from Lower Nepal through Behar, Bengal, and the Duars into Assam and Western Burma. P. m. ntape is found at Moun. Aboo, in the Central Provinces and Orisas, and southwards to Cape Comorin, while a fourth race P. m. aintentin overlaps from Afghanisan into parts of Baluchistan and Trans-Indus Punjab. An insular race in Ceylon is the true P. m. mahardatuman. A resident appecies with slight local migrations. This species must not be confused with the Whitewinged Black Til (Parus methali) locally common in Bajipatans.

Habits, etc.—The Indian Grey Tit is more properly to be considered as hill than a plains bird, and each rue breeds throughout the more wooded ranges of its area from a height of about 3500 feet to their summits, even to 9000 or 10,000 feet when this possible. But above 1000 feet it is usually rather scarce. While not strictly migratory it wunders a good deal after the breeding season, and then is found commonly in the plains area contignous to the ranges on which it breeds. It is a blird of the more open types of forest, and while really offered was only to be the sevent of the strictly migratory to be the second with the second to the second in season for the second was offered to be set to the second in search of food.

Although of merical of small parties or included in the large mixed burning in the properties of small insectivorous brisk this Tit is more carefully examining the branches and twigs for small insects and their caterpilars and eggs, peering into every nook and cranny and bunch of leaves, and when necessary for the purpose indulging in a variety of acrobatic postures for which its sturdy build and strong legs are admirably adapted. At times it holds some article of food between its feet on a branch and hammers at it with pickaxe blows of the beak, and the noise thus much if frequently installed properties of a small Woodpecker. It is a cheerful in a bays a cheery velocome sound. With the spiritude of the proposal of the breeful sound with the proposal of the processing season this supplemented with a supplemented produced in the proposal of the breeful season that the proposal of th

It is interesting to note that the young bird in the juvenile plumage is greenish in colour on the back and yellower underneath than the adult, a clear indication of the relationship between the two main types of Parus major and the fact that the Western birds must be considered the older and original type.

This Tit appears to be double-brooded wherever found. In the Himalayas the breeding season is from the end of March to July; while in the Peninsula the breeding season is more extended commencing in February and lasting until November, but it varies in different localities, and the majority everywhere law before III.

The nest is a large, shapeless mass of downy fur, cattle hig; feathers, and wood, with a foundation of grass roots and moss, the whole for fine for the first part of the state of the stat

The normal clutch consists of four to six eggs. In shape they are a broad oval, somewhat elongated and pointed towards the small end, and have a faint gloss. In colour they are white, speckled and spotted with reddish-brown and pale purplish, these markings often tending to coalesce into a zone round the broad end.

They measure about 0.70 by 0.54 inches.

HE GREEN-BACKED TI

PARUS MONTICOLUS Vigors

Description.—Length 5 inches. Sexes alike. The whole head, neck, breast, and a broad line down the centre of the abdomen glossy black: a conspicuous white patch on the check and a fainter one on the nape; remainder of lower plumage deep yellow; back greenish-yellow; rump slaty-blue; wings mixed slaty-blue and black with two white bars; tail black and slaty-blue, edged and tipped with white.

Iris brown; bill black; legs plumbeous-slate.

Field Identification.—Himalayan form; the common Tit of all Himalayan hill stations. A typical Tit with white cheek-patch, black head and breast and abdominal band; distinguished from the

Grey Tit by the brighter coloration, greenish back instead of grey, yellow under parts instead of greyish-white.

Distribution.—The Green-backed Tri is found throughout the Himalayas, and also further casturated strough Manipur, Chittagong and the Chin Hills to Yunnan and Formons. In many the recting zone lies between goos and 8000 feet; but a few may be recting zone lies between goos and 8000 feet; but after many between the contract of the co

Habiti, etc.—This bird resembles other This in being a ferestloving bird thought it wanders a good deal and may be found in any type of country in the hills, cultivation or scrub-covered hill-side. While properly speaking arboral it freely descends to undergrowth and to the ground. It is occasionally found in small flocks and parties, but is more usually found singly or in pairs, and one or more of these birds will invariably be found attached to the mixed busting parties of small birds which are such a familiar feature of

The food consists chiefly of insects in their various stages and also of fruits, and it is less of a seed eater and less omnivorous than

Although without a proper song, this bird has a number of not unmusical calls, which are amongst the most penetrating and familiar of the bird sounds in a Himalayan station. One note is described as a very louf Gura-yllable whichts which may be written the district, the third syllable much prolonged. Its ordinary spring call at the commencement of the breeding season is a newing whilete phenoor panew, while other calls may be syllabilised as pervent or treentness and sit-here and teacher. But it must be remembered that most of the Tit family have a variety of very similar calls, hard to distinguish from one another. This species is very found of water, bathing more

of eggs will be found in April, though fresh eggs may be still found until June: it is possible that some birds are double-brooded.

The nest is a shapeless mass, with a hollow on top for the eggs, of soft downy fur and feathers with more or less moss by way of foundation. It is placed in a hole, either in a tree, wall, bamboo or

The clutch consists normally of six to eight eggs, though some-

times as few as four eggs are laid.

The eggs are moderately broad ovals, some almost symmetrical, others slightly pointed at one end. In colour they are white, almost

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without gloss, spotted, blotched, and speckled with different shades dead hown; the markings vary in quantity and intensity but tend to be most numerous towards the large end. The eggs of this species in a series will be found to be rather longer and more slender and more richly marked than those of the Grey Tit.

In size they average about 0.72 by 0.52 inches.

THE YELLOW-CHEEKED TIT

Machlolophus xanthogenys (Vigors)

Description.—Length 5 inches. Sexes alike. Crown and a long pointed crest, a line through the eye and a broad band from the chin to the vent glossy black; a line over each eye to a patch on the hind neck, the cheeks and the sides of the body canary-yellow; upper parts yellowish-green; wings black, the small coverts sported with pale yellow-white, the flight-feathers edged and variegated with blue-grey and white; tail black, washed with blue-grey, the tips of all feathers and the outer edge of the outer feather white.

Iris dark brown ; bill black ; legs dark slaty-blue.

Field Identification.—A typical greenish and yellow Tit with a pointed black creat and a heavy black band down the centre of the lower parts; distinguished from the Green-backed Tit by the creat and the yellow cheeks. Strictly arboreal and confined to well-wooded country, particularly hills.

Distribution.—This species is confined to India and is divided into three races. The typical form occurs in the Western Himalayas from Murree to Eastern Nepal, breeding in a zone between goos and 7000 feet, though its distribution is somewhat capricious. M. x. aplanotus is found across the centre of the Peninsula from Mount Aboo and Mahabaleshwar to Parasanth Hill and the Krishna River, M. x. travamoreessis, a larger and duller bird, is confined to the Western Chats and the neighbouring wooded areas from the South Konkan to the Asambo Hills. These two races are found at all elevations and differ from the typical race in having a shorter crest, the apots on the wing-coverts white instead of yellow, and the yellow parts of the plumage paler. In these two races the females have the black band on the lower plumage replaced with olive green, and in M. s. travamoreessis some females also have the crest olive-green.

Habit.—The Yellow-cheeked Tit is a very sociable bird. Except when actually breeding it is found in small parties which are apt to attach themselves to the mixed hunting parties that are commonly found in the woods which they frequent. It is arboreal in habits, spending its life in an incessant hunt in the trees for the small insects

and their eggs and larve and the various seeds and fruits which form its food. Even the largest caterpillars are attacked and term into pieces. Like many other birds it catches flying ands and feeds at the flowers of the ecton-tree. The call-notes are load and joyous in tone, being very distinct from and more musical than those of other Tiss. Those of the Himalayara race may be yallshillized as typi flying and signias testiment testi-testiment, while the breeding call is a load tonit tonit. There is also a low airring note and a chatter like that of the Gree Tits.

The Himalayan race breeds from April to June. The Continental races evidently breed a good deal later, from July to August or even



Fig. 6-Yellow-cheeked Tit (3 nat. size)

September and October, though in the north of the Peninsula some pairs start in April.

The nest is built in holes in trees at any height up to about 20 feet. The hole may be a small natural cavity or one cut out by the birds themselves, a large hollow in a bough or the old nesting-bole of a Barbett or Woodpecker. The nest is the usual shapeless pad of the family, composed of a mass of wool and hair on a foundation of moss and other miscellaneous materials. It varies in size according to the circumstances of the hole.

The usual clutch consists of four or five eggs. These vary in gloss. The ground is white and they are moderately thickly speckled or spotted all over. Some of the spots are large and blotchy, and in some eggs the markings tend to collect at one end.

The eggs measure about 0.70 by 0.52 inches.

THE CRESTED BLACK TIT

LOPHOPHANES MELANOLOPHUS (Vigors)

Description.—Length 4 inches. Seese alike. The whole head including a long pointed crest, neck and breast black, except for a large white patch on the sides of the face and another on the nape; upper plumage iron-grey, the exposed parts of the wings and tail paler; two lines of rufous spots across the wing, and the inner than the patch of the wings and the inner than the patch of the wings and the inner than the patch of the wings and the inner the wings and the patch of the wings and the wings and the patch of the wings and the wings and the fact of the wings and w

Iris brown : bill black : legs dark bluish-grey.

Field Identification.—Purely West Himalayan form, common at all hill stations. 'A small dark Tit with an erect-pointed crest and

compicuous white patches on mape and sides of the face. Usually found in fleds, and in hunting parties in forest. The two lines of rudous apots across the wing provide the readiest means of separation from another larger and darker species (Lophophone rafomechalis) which is locally common throughout the whole length of the Himalayas.

Distribution.—The Crested Black Tit is

found from the Sufed Koh and Chitral along the Himalayas to Garhwal and Naini Tal. It breeds in a somewhat high zone between 6000 and 12,000 feet but in winter descends also down to about 4000 feet, and even occasionally lower, though it never

reaches the plains. It is very common about Gulmurg, the Galis, Dharmsala, Kulu, and Simla.

Hubtit, etc.—This Tit is most markedly a fortest bird and every variety of evergene tree growth is frequented by it. It is always busy in the search for food, preferably high in some moss-grown oak or lordly pine, and the soft chee-chee note which forms a running accompaniment to all its activities will be heard long before its timy owner is seen in the branches above one's head. Occasionally it feeds alone, but more usually two or three join together in a free-and-casy bond of companionship, while in winter these parties in turn join together in regular flocks numbering often as many as fifty birds. These flocks are frequently accompanied by Gold-crests, and in the



r. Spotted Munia. 2. Red Avadavat. 3. Red-breasted Flycatcher. 4. Red-breaded Tit. 5. Indian Grey Tit. 6. Himalayan Tree-Creeper. (A

area where this Tit occurs it is a leading spirit in all the mixed hunting parties.

It is as active and aerobatic in its movements as the Red-Jeasled Tit, and both of these birds easily surpass the heavier Crop and Green-backed Tits in this respect. The Crested Black Tit; and the seen at rest, but when the first stirrings of the spring pure his these towards a mate, he occasionally ceases from the hunt for food and betaking himself to some lofty twig he perches there and proclaims his ardour to the world with a loud clear call seast you, roof you, cannot you, and you, a sentiment that frequently finish as need in the human heart below. There are a variety of other cheerful call notice; a favourite song-call is doubt-dashion to hish-layjou and also a load plaintive tyu-tyu slowly repeated. The song is a whirring, reeling till of the erasplanoper tyne.

The food consists chiefly of insects

The breeding season commences in March and the majority of eggs are laid early in April. Nests, however, may be found until June, and it is probable that there are sometimes two broads in the season.

and, whether close to the ground or 30 feet up. In the hole a substantial foundation of moss obtained from adjacent tree-trusks is first collected ao as to close in the cavity to a suitable size; on this is built the nest proper which consists of a mass, large and shapeless or small and closely felted, of wood and fur, occasionally

The number of eggs is very variable from four to ten, but the usual clutch consists of six to eight eggs.

The eggs are moderately broad ovals though somewhat longer in proportion than those of most The; the ground-colour is white with a faint gloss, blotched, spotted, and speckled with bright brownishred, the markings often tending to form a dense confluent cap or zone about the larger end of the sggs.

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THE RED-HEADED TIT

ÆGITHALISCUS CONCINNUS (Gould)

Description.—Length including tail 4 inches. Sexes alike. Whole top of the head chestmut; sides of the head and a large round paths on the throat deep black; a broad eyebrow, a broad moustachial streak, and the chin white; remainder of lower plumage ferruginous.

Upper plumage and wings and tail bluish-grey, the concealed portions of the quill-feathers dark brown, and the outer tail-feathers tipped with white. The tail is long and graduated.

Iris pale vellow; bill black, gape fleshy; legs buffy-yellow.

Field Identification.—A diminutive Himalayan species invariably found in flocks in trees and bushes except when breeding; very small, with a long tail and most conspicuous head markings of bright chestunt, black and white; no abdominal band. The flocks utter a low, harsh churring note.

Diatribution.—The Red-headed Tit extends from Chitral all through the Himalayas across the various ranges of Assam and Northern Burna into China. There are several races in the eastern portion of its range, but in India we are only concerned with two, & e. e. related is found from Chitral eastwards to Sikhim, where it is replaced by the smaller and more deeply-coloured & e. e. rubricapillus. The former breads at elevations between 5000 and 10,000 feet, and occurs in smaller numbers up to 12,000 feet; the latter, however, does not so much above 7000 feet. A resident specific

The Sultan-Tit (Melanochlora sultanea) is found in small parties in trees at low elevations in the Eastern Himalayas, Assam and Burma. It is larger than the true Tits, heavy in build and glossy blackish save for a bright vellow abdomen and crown with a loose crest.

Habits, etc.—This Tit is purely a hill species, and in the main occupies a middle zone internediate between the foot-hills and the higher ranges. It is more strictly sedentary than most of the other members of the family, only an occasional party descending in winter a thousand feet or so lower the normal zone. It never visits the ground, but is equally that home in the branches of high trees in thick forest or amongst the indigs and berehris husbest of open grassies.

The leading characteristic of this species is its fussy sociability. Throughout the year it is found in small flocks, and though while actually breeding individual prins leave the company of their fellows, locks may be met with throughout the breeding season, consisting either of late breeders with parties of young birds strong on the hardware careful family parties of young birds strong on the hardware freedom to be suffered from the first strong the strong hardware freedom to the hardware freedom to the hardware freedom to the hardware freedom to the strong the first strong the strong the first strong the fir

churring note of defiance and of warning is uttered and taken up by a dozen throats; while its acrobate feats surpass those of all the other species, except perhaps the Crested Black Tit. It investigates every leaf and twig, now circling adroitly round its perch, now hanging upside down—any angle, any position, all are the same—inaction only is abhorrent to it. The parties are strangely transing; one has only to stand still and the little grynnasts will climb and of the stranger at their gates; then a sould not appear to reognition or a note of warning from a bird and the flock will vanish as quietly as it came, like a little flight of arrows spell in relays by a fairy archer through the bushes. They seldom venture into the open, and then only for short flights between two climps of trees. The flight is weak and practically never sustained for more than a few yards at a time, though when disturbed from the next this bird can by downstant and the contract of the contract of the contract of the contract all notes are not probably early.

The breeding season commences about the regnining of March and continues throughout April and May. The nest is placed in a variety of situations ranging from a tangle of matted grass near the ground to the bough of a deodar 4p feet up. But the majority will be found in stunted hill-oaks and bushes within easy reach, though seldom conspicious. The nests are most beautiful structures, very closely resembling and recalling the familiar "bottle" nests of the Long-tailed Tit in England. They are large, upright, egge-shaped structures of moss and lichen, studded and bound together with cotton-down, cobwebs and similar substances, some 44 inches in height and 3½ inches in diameter, with a small entrance high on one side. The walls are tibick and closely woree, and there is a dense liming of feathers mixed sometimes with seed-down, the whole forming as cosy a home as it is possible to imagine.

The eggs vary in number from three to eight, but the usual clutch

The tiny eggs are broad ovals, sometimes almost globular, and or creamy white, almost without gloss, and round the broad end there is a conspicuous zone of minute reddish and purple spots almost confluent and clouding into one another.

They measure about 0.56 by 0.45 inches.

THE CHESTNUT-BELLIED NUTHATCH

SITTA CASTANEA Lesson

Description—Length; inches. Male: Upper plumage slaty-blue, liower plumage uniform dark chesturb-by, except for the following liower plumage uniform dark chesturb-by, except for the following markings; a black streak through the eye from the nostri! to the shoulder; a white patch from the chin below the eye to the carcoverts; middle tall-feathers ashly-blue, the next two black, using ashly-blue tips and edges, the remainder black with white markings; under tall-coverts mixed chestuat and ashly; under surface of the wings black with a white patch only visible from below;

Female: Under parts paler chestnut, and the white face markings less clearly defined.

Iris dark brown : bill black, slaty-grey at base : legs dark greenish-

plumbeous.

The hind toe is greatly developed and the inner front toe dwarfed.

The beak is long, stout and pointed.

Field Litanification.—A small bird, slary-blue above, chestmut-bay below, with a bawy pointed beak. Purely abroval, running like a mouse about the bark and twigs of trees, frequently upside-down. Most Nuthatches appear vey similar in the field, Of common species the Himalayan (Sitta himalayami) and Kashmir (Sitta condumients) Nuthatches are much paler, more fullyous below, the former differing from all Indian species in a white patch on the count tuil-efasthers. A more compactionus species the White-checked Nuthatch (Sitta himalayami) is found in the higher tree zone of the Suffer Kohn and Western Himalayas. This is dark blue above with a black crown and creamy-white below with rich chestnut on the falks and under the tail. Is habitat in rocky nullahs amply identifies the large Rock-Nuthatch (S. iranica) of Balachistan, remarkable for its abbullar mud neat on a rock.

Distribution—The Chestrut-bellied Nuthatch has a somewhat wide distribution throughout India, Assam, and Burma to Siam. It is divided into races, of which we are concerned with four Eccept for the Vision of the Chestral Chestral

Habits, etc.—The habits of this species are typical of all the Nuthatches. They share with Woodpeckers and Tree-Creepers

the ability to climb about the trunks and branches of trees in order to search evices of the bark for the insects and large that live there-secure from the attentions of most insect-feeding birds; but the Nuthatches are by far the most skilful climbers of the three classes; they do not need the support of their tills against the climb and and the superior of the three skilled climbers of the three classes; they do not need the support of their tills against one of the superior of their tills against a support of the superior of the supe



Fig. 8-Chestnut-hellied Nuthatch (4 nat. size)

tops of the highest or oldest trees; it is more often heard than seen, as in addition to its sharp note the sound of hammering on bark and on seeds and nuts, as it breaks into their kernels, betrays its whereabours.

The main breeding season of the Himalayan nees is in April and May, and of the typical face in February and March. All races nest in holes and hollows of trees, and the hill birds also use holes in walls. A Nutharch's nest may always he recognised by the habit of plastering the entrance and sides of the hole with mud and clay to adapt it to the needs of the bird, such plaster-work smeetiness being of considerable extent. In holes of trees the nest is usually searny, consisting largely of flaty material like signs of bark or the seed-cases of trees, but in the case of nests built in holes in walls the nest is a much more substantial fairi including a moss foundation and a lining of fur. The nest site is often close to the ground, and even when probled is frequently repaired and used again immediately.

The clutch varies from two to six egos. The egos greatly resemble those of Tits; they are regular broad ovals, fragile and fine in texture with very little gloss. The ground-colour is pure white and the markings consist of small spots and specifies of brick-red and reddish-lilae. In size they average about 0.70 by 0.75 inches.

The word Nuthatch is believed to be a corruption of an older

name Nuthack.

THE VELVET-FRONTED NUTHATCH

SITTA FRONTALIS (Swainson)

(Frontispiece, fig. 4)

Description.—Length § inches. Male: A broad band across the forchead and a narrow streak above the eye to the napse velvet-black; the whole upper plumage and wing-coverts blue; wing black, the individual feathers more or less edged with blue; middle tail-feathers blue, the others blackish edged and tipped with blue; car-coverts like; chin and throat whitish shading into the greyish-like of the rest of the under parts.

The female is similar to the male but lacks the narrow black eve-streak.

Iris lemon-vellow; bill coral-red, tipped above with brownish;

mouth coral-red; legs brown with an orange tinge.

The hind the is greatly developed and the hill parrow and pointed.

The body has the same smell as a Woodpecker.

Field Identification.—Outer Himalayas and Peninsular India. A

small bird blue above and greyish-lilac below with a heavy velvetblack band across the forehead and a coral-red bill. Arboreal in habits, running like a mouse about the trunks and branches of trees in hill forest areas.

Dittribution.—The Velvet-fronted Nuthatch has two races in our area. The typical race is found in Ceylon and in the Indian Perinsula south of a line from Khandesh, the Ceitral Provinces and Chota Nagure, being largely confined to the forests of the Eastern and Western Ghats. It is particularly common in the Nilgiris. A slightly smaller race S. F. corollina is found along the submontane valleys of the Himilayas up to about 2500 feet from Delvia Dun castwards, in the halls and plains of Assam up to about 2500 feet form Delvia Dun castwards, in the halls and plains of Assam up to about 2500 feet for Delvia Dun castwards, in the halls and plains of Assam up to about 2500 feet. This species is also found recibility Species of the Common Co

Habits.—The habits of this species are similar to those of other Nuthatches and like them it is often found in the mixed hunting

parties. The Velvet-fronted Nuthatch is one of the most active birds imaginable, for ever on the move, nimby running up and down and round the trunks of trees, climbing the measurement of the descending head-forement and running uspited down along the lower surface of a bough. It does not, as a rule, remain long in one tree but darst quickly on from one to another, followed by its companies—for they are usually found in pairs or parties of four or five individuals—and alights with a trilling little not which although comparatively weak is audible at a considerable distance. This note which is varously the surface of the distance of the latest distract the control of the latest distract behavior of the latest distract behavior of the latest distract barried by the distract of the distract distract and aligned the distract of the latest distract barried by the distract distract barried by the distract barried by the

This Nuthatch may be found on occasion in most types of forest but is essentially abid of the vergreen forest, though it has a decided preference for the edges of clearings and light patches. Dead trees are a favourite hunting ground. It may often be seen running along fallen logs or over small dead wood lying on the ground and sometimes it even forages in brustavoud. Usually, however, it will be seen in trees and no tree is too high for it, so that the ear will often amountee the contract of the contract of the contract of the contract of the in nicking un is time shapes.

The food consists exclusively of insects.

The main breeding eason of the Himalyan race is in May and June, but in South India and Celon the season is from the middle of February until May. The nest is built in a hole in a tree at any height from the ground up to about 40 feet but most nests will be found below ao feet. The hole chosen is usually a small natural one, but the deserted nest-holes of Woodpeckers and Barbets are abouted; and where necessary the entrance hole is modified with plaster-work after the manner of other Nutharthes. The nest is substantial pad of moss green or dry, which is lined with fur and includes a good many feathers, both amounts the moss and in the lining.

The clutch consists of three to five gggs, which are very similar to those of the Tis. They are broad ovals, rather compressed towards the small end, fine and compact in texture but devoid of gloss. The ground-colour is white and the markings consists of blotches, speckles and spots of brick-dust red and somewhat pale purple, sometimes gathered in a sort of irregular zone round the broad end.

The egg measures about 0.65 by 0.50 inches.

THE WHITE-THROATED LAUGHING-THRUSH

GARRULAX ALBOGULARIS (Gould) (Plate iv, Fig. 1, opposite page 72)

Description.—Length 12 inches. Sexes alike. Upper plumage greyish olive-brown, the forehead fulvous, and a black mark in front of and below the eye; throat and upper breast pure white, sharply defined and bordered broadly with the colour of the upper parts which gradually shades off into the bright rufuou of the rest of the lower plumage; four outer pairs of tail-feathers broadly tipped with white.

The tail is rounded and full.

Iris bluish-grey; bill horny-black; mouth yellow; legs slaty-plumbeous.

Field Identification.—Himalayan form. Medium-sized olive-grey bird with rufous belly, and conspicuous shining white throat patch. Found in noisy parties in heavy jungle; presence first revealed by a currous bising note.

Distribution.—Throughout the Himalayas from Hazara to Sikkin, and in Southwest China. The Himalayas brids are divided into two races. G. a. whistleri is the better known form and extends from the Hazara country to about Eastern Nepal, being particularly common at Mussoorie and less so about Sinals and Naini Tal. The typical form is more brightly coloured with more rufous in the plumage and sightly smaller. It is found in Nepal and Sikkin and in North Cachar. Both forms are birds of middle elevations, occurring from about 5000 to 900 feet. A resident species.

The closely related White-crested Laughing-Thrush (Garrulax leucolophu) common along the Hinalizar from Garlwal castwards is easily recognised by its white-crested head and black hand through the eys. In the Eastern Himalayas the Black-properted Laughing-Thush (Garrulax pectoudis), an olive-brown and futious bird with a marked black proget band, is remarkable in having a smaller counterpart the Necklaced Laughing-Thrush (Garrulax monlinger). Both are common in the same localities, often joining in a mixed flock. The only member of this genus found in Southern India is the Wynaud Laughing-Thrush (Garrulax delessorti), which is peculiar to the hill ranges from North Kanara to Transnoros.

Habiti, etc.—This large Laughing-Thrush is a very sedentary species and does move much from its chosen haunts, which consist of heavy forcet in the deeper and more secluded ravines. In such places in large parties which do not entirely break up even in the breeding season. They feed a good deal on the ground, turning up the dead leaves in search of insects, but they are perhaps more often seen up in the trees, searching the crevices of the bark and tearing off the lumps of moss which grow on most of the older trees in the areas that they frequent.

While thus feeding they keep up a low mamuring note, tth, triestably reminiscent of a flock of Tits, though of course louder. At the least provocation this is the time a discovation concert of noisy screaming, hissing and characteristic to the calls being of a peculiarly cerie timbre and suited to the calls being of a peculiarly every turred. In fact they become arroundings in which they are uttered. In fact they peculiarly ghostly about these birds, as a flock of them move about in the shady recesses of the forest, their white gropts shining conspicuously as cratically moving aposts of light and their wend voices breaking in upon the silence. Though not particularly ally they soon vanish if disturbed, slipping away one by one up the trees from branch to branch, and so on up the hill-side with some rapidity.

The breeding season lasts from the beginning of April to the end of June, some birds nesting until August. The nest is a large wide cup, not as a rule very deep, and is made of course grass, creepers, dead leaves, moss, and roots, with usually a lining of fem and moss roots. It is built in a bush or small tree, usually about 1 to to feet from the ground, and the usual situation is at the end of a bough or between two or three upright shoots on low, horizontal branches.

The clutch varies from two to four eggs, but the normal number is three.

The eggs are long and fairly pointed ovals with a high gloss.

They vary from a deep dull blue to a deep intense greenish-blue,
and are darker than the eggs of all other Babblers and LaughingThrushea. They are without markings.

In size they average about 1:22 by 0:82 inches.

THE RED-HEADED LAUGHING-THRUSH

ROCHALOPTERON ERYTHROCEPHALUM (Vigors)

Description—Leagth 11 inches. Seese alike. Upper surface of head each threat black, mixed below and behind the eye with chestnut; lower plumage pale fulvous, lightly scaled with black on the throat and breast 'upper plumage olives brown scaled with black on the throat and breast 'upper plumage olives brown scaled with black about the shoulders; rump platy-grey; wings and tail ashy, the feathers brightly edged with golden olive-polive; a bright foreignious bar across the wing and behind it a patch of

Iris pale brown; bill black; legs pale brown.

The tail is rather long and full.

Field Identification.-Himalayan form. The chestnut crown, spotted neck and gilded wings and tail are not conspicuous in the forest where the bird appears nondescript in colour with a very dark head and neck. Very shy, found in thick undergrowth in parties which utter a peculiar murmuring note.

Mention may here be made of the Rufous-necked Laughing-Thrush (Dryonastes ruficollis), common along the base of the Eastern Himalayas, a dusky-looking bird with chestnut patches on the sides of the neck and under the tail. The Rufous-chinned Laughing-Thrush (Ianthocincla rufogularis), found in the lower Himalayan ranges, is rich olive-brown and grey squamated with black.

Distribution.-This fine Laughing-Thrush is widely distributed along the Himalayas and in the various mountain ranges which extend from them down to the south of Tenasserim. It is divided into a number of geographical races, which in several cases are very distinct. Two of these concern us. The typical race is common in the Western Himalayas from Chamba on the west into Nepal. It breeds from about 6000 to 9000 feet, and in winter works downhill to about 4000 feet. Eastwards of Nepal to the Daphla and Miri Hills in Assam it is replaced by T. e. nigrimentum, in which the ear-coverts are black with pinkish-white edges; this race is found at similar elevations to the other. Apart from altitudinal movements both birds are residents

Habits, etc. - The Red - headed Laughing - Thrush is a very common bird in well-forested, shady ravines where there is plenty of undergrowth. It is, however, very shy and secretive and is therefore little known to the majority of people, though once its various notes have been learnt evidence of its abundance is surprising. In the breeding season a loud, clear, double whistle, pheeou-pheeou, a familiar sound in all the thicker forests, is its ordinary call. This is easily imitated and the bird readily called up. This ceases in winter, but the presence of a party in the undergrowth is revealed as one passes along a path by a soft murmur, curious but distinctly pleasant. If a nest is examined the pair that own it work backwards and forwards in the bushes a few yards away but always evading observation, and as they fuss and flirt their long tails, bowing, bobbing, jerking from side to side, now on one bough, now on another, they keep up an incessant squeaky murmuring, chicky-cree-cree-cree, or a harsh, low chatter, queer-que, queer-quee, very difficult to describe. Rarely the birds come out into the open, but when they do so it is only to flutter and skim back into the nearest cover at the slightest excuse.

The breeding season is extended from May to August. The

nest is a large massive cup composed largely of dead leaves bound round with grass and bents, fine twigs and long strips of fibrous bark till a very solid wall has been made; moss and maidenhair enter also in the construction and the egg cavity is lined with fine grass and fine roots.

The clutch usually consists of three eggs. These are very long ovals, fine and compact in texture with a slight gloss. The groundcolour is delicate, pale greenish-blue, with a few spots, streaks, and

The eggs measure about 1-2 by 0-82 inches.

(Plate iii, Fig. 1, opposite page 48)

Description.-Length 11 inches. Sexes alike. Forehead at base of beak fulvous shading into the ashy olive-brown of the whole upper plumage; sides of the face black, broken with a certain amount of white behind the eye; chin and throat fulvous with a black mark down the centre; lower plumage similar to the upper but paler and gradually changing into bright tawny-buff posteriorly. Wings brightly variegated with black, white and grey, and bright golden-yellow or red.

Tail rather long and full: the middle four pairs of tail-feathers black for three-quarters of their length, then ashy-grey or ashy-yellow and tipped with white; the other feathers ashy on the inner webs, golden or reddish yellow on the outer and tipped with white.

Iris sage green; bill black; legs pale fleshy-brown, claws dusky. Field Identification.-Himalayan form, found in forest areas; a dull-coloured bird, chiefly conspicuous for black and white markings on the face. Shy and clusive, but rather noisy; generally in parties,

Distribution.-The Variegated Laughing-Thrush is found on the Samana and in the Himalayas from Chitral and Gilgit to Nepal. It is divided into two races. The meeting ground of these two races is about Chamba and Dharmsala. In the Eastern and typical race, common in the Simla Hills, the outer webs of the wing and tailfeathers are very variable in colour, ranging from bright golden-yellow to crimson. In the Western form, T. v. simile, which is very common in the Galis and about Murree, these outer webs are pure frenchgrey and do not vary. This is a forest-loving bird, of high elevations, breeding in a zone between 6000 and 11,000 feet; it is not a migrant, but in winter the majority move somewhat downhill and may then be found at any height from 4000 feet upwards.

Habits, etc.-Steep hill-sides covered with dense undergrowth are the haunts of this bird, and preferably those slopes where the undergrowth is further shaded and rendered secluded by the presence of large trees. In such situations the Variegated Laughing-Thrush is found in small parties or even in flocks numbering about twenty individuals, whose presence is betrayed by their noisy behaviour. The call-note of the species is a loud clear whistle pitt-tee-teeer. frequently repeated and ascending in scale, but in addition to this it has a variety of squeaky notes in a chattering slightly querulous tone; a curious sort of drumming note is also occasionally uttered. The ordinary demeanour of the bird is fairly bold, but as soon as

it has reason to suspect the presence of danger it becomes very shy and active, skulking in the thickest of the undergrowth, or hopping rapidly and silently up the branches of some tree, from the top of which it plunges into further cover. It appears to visit the ground but seldom, though often in the undergrowth close to it. In Lahul where cover is scarce, the Western form simile which occurs there is found in the willow groves taking shelter in the thick-pollarded heads of the trees. The food consists both of fruits and berries and

The breeding season lasts from April to July, most eggs being laid in May and June. The nest is a large, massive and rather deep cup composed of coarse grass, dry stems and fibres, mixed with a few dry leaves; it is lined with fine grass, roots, or pine-needles. It is placed in bush undergrowth or more usually up in some tree, preferably a fir. often at a considerable height from the ground. Both sexes incubate the eggs.

The clutch consists normally of two or three eggs but rarely four or five are laid; in shape they are rather long ovals, with a fine texture and slight gloss. The ground-colour is a pale rather dingy greenishblue, and the markings consist of blotches, spots, and freckles of liver-red and various shades of brown and purple; the markings are generally collected towards the larger end.

They measure about 1.11 by 0.78 inches.

THE NILGIRI LAUGHING-THRUSH

TROCHALOPTERON CACHINNANS (Jerdon)

Description.-Length 9 inches. Sexes alike. A broad white line black line through the eye; forehead and chin also black; whole upper plumage, wings, and tail olive-brown, the crown narrowly scaled with black, and the back of the head suffused with ashy; whole under surface bright rufous, duller on the flanks and

Field Identification. Only in Nilgiris; a dull-coloured bird, olivebrown above, rufous below, with black and white markings on the face : noisy and shy, in parties in heavy undergrowth. Distribution.-Confined to the Nilgiris at elevations over 4500 feet.

A resident species. A very similar species (Trochalopteron jerdoni) is Brahmagherries (T. j. jerdoni), North Travancore (T. j. fairbanki) and

South Travancore (T. j. meridionale).

Habits, etc.-This Laughing-Thrush is extremely common in the Nilgiris at all the higher elevations, as for instance at Coonoor and Kotagherry. It is found, like most of the genus, in parties which live in dense undergrowth and spend a large portion of their time on the ground searching for insects and fallen berries. It is particularly partial to the berries of the Brazil or Peruvian cherry, which has been introduced in the Nilgiris in recent times. This bird merits more than most of the family the title of Laughing-Thrush; there is something peculiarly human about the tones of its voice, and its call is certainly a laugh-a most "maniacal laugh" according to Hume. In demeanour the bird is very shy and evades observation.

The breeding season lasts from February to June.

The nest is a deep cup composed of fine twigs, moss, grass, dead leaves, and similar substances, and it is lined with moss roots, fibres. fine grass, wool, and fur. It is placed in the fork of a bush or tree at any height from the ground up to about 12 feet.

The clutch consists of two or three eggs. They are moderately broad ovals, somewhat pointed towards the small end, and of fine texture with a slight gloss. The ground-colour is a delicate pale blue which is speckled and blotched, rather sparingly, with reddish- or pinkish-brown, a few eggs having also blackish-brown spots and hair-

The egg measures about 1.0 by 0.75 inches.

THE STREAKED LAUGHING-THRUSH

TROCHALOPTERON LINEATUM (Vigors) (Plate iii, Fig. 5, opposite page 48)

Description.-Length 8 inches. Sexes alike. Hoary-grey, more or less streaked throughout with reddish-brown, the shafts of the feathers being particularly conspicuous; ear-coverts, wings and tail bright reddish-brown, the tail with obsolete rayed markings, and each feather tipped with greyish-white, defined interiorly by a black line.

Iris brown; bill dusky, base of lower mandible steely-horn; feet fleshy-brown, claws livid-horny.

Field Identification.—Familiar garden brief in the Himalayas; a smallish brief with a broad dispuys all; grey and chestunt in colon; with pale streaking, appearing dark brown at any distance; skulls like a rat amongst low bank movements jerky; utter a variety of squask) romeoments of squask promongolist striatia, a little of very similar appearance but larger and more arboreal, found throughout the Himalayas from Simla eastwards.

Bainhains—The Streaked Laughing-Thrush is found from the mountains of North Balachista to Chiral and Gligit and thence along the whole of the Himalayas to Bhutan. Within this range it bas been divided inpo free geographical races. Starting from the west, the Balachistan bird, common at Ziarat, is known as T. Lissiantanii. In Gligit, Chiral and Northern Kashmir the race is termed T. L gligit, and this in turn gives place in Southern Kashmir to the typical race T. L lineatine, which extends through the Punjab Himalayas to Garlwal and Kumaon. The Nepal and Skim birds are known as T. Listifer, while the Bhutan bird has been separated as T. L indivisation. These races merely differ amongst themselves in degree of coloration both of the feathers and of their slates. A

Habit, etc.—This familiar bird breach throughout the hill ranges that it inhabits between about 5,000 and 10,000 feet, occasionally sacending even a little higher. While not a migrant in any sense of the word, it tends to drift downfull we winter months and then may be met with down to about 5000 feet and sometimes lover, as at Kolast. It may be described as of the undergrowth, and provided that it has tangles of rank grass, thick bastles, or rocks combined with herbage in which to thread its secretive way, it is indifferent whether these are situated on open hill-sides or in the middle of heavy feets are situated on open hill-sides or in the

About the hill stations of the Western Himalayas, from the Galls and Kashmir across to Naim Tal and Almora, it is one of the most familiar of the station birds, living in the rate of and attracting attention by its chattering arties, and along the forces roads coming to notice by shuffling across the roads and up the bank sides in front of passers-by; in Labul it even intrudes into the courtyards of houses. Further east it is much scarcer, and on its attent there would not merit decision in this work.

This dull-coloured Laughing-Thrush lives both in pairs and in small parties of four or five individuals. The greater part of its life

is lived within a height of 5 or 6 feet from the ground and it is practically never away from thick cover. It shuffles freely about on the ground after the manner of a large Hedge-Sparrow, working amongst the undergrowth and climbing up into the bushes: occasionally it is inspired with ambition and climbs from the bushes into thick and handy trees; but so ingrained is its parasitic devotion to Mother Earth that if it desires to proceed from one tree to another it will not fly across the open, parachuting on open wings to its foot like other Laughing-Thrushes; but it hastily drops from the first tree to the ground and thence works "in rushes, taking cover" to the base of the second tree and climbs it afresh. A party moving along or up and down the hill-side has the same tactics; one by one the individuals composing it "dribble" from cover to cover, now hopping rapidly along the ground for a yard or two, then feebly fluttering for another stretch. An extended flight must be virtually unknown to the bird. Yet with all these skulking ways and excess of caution it is in no sense shy until molested, and one may pass the hill-side and it will not bother to leave. In a bush it dips and bows, turning this way and that and incessantly flirting the heavy tail, as it utters a series of harsh squeaky notes chit-chit-chitr, chit-chitchitry, chicker-chicker or witti-kitti-cree, or a soft murmuring churring note crrer-r.

The call-note is a loud, clear whistle split-acce-are out tity-diffy-secare much like that of other Laughing-Thrushes. This micellaneous assortment of clattering squeaks together with the rusting of leaves usually indicate the presence of a party in cover where they acquise invisible; and these are amongst the most familiar bird sounds of the Western hill stations. The food is the usual mixture of insects, seeds, and small fruits common to most of the family.

seeds, and small fruits common ones of the about the probable. The breeding season is very extended, and the bird is probable double-brooded. Eggs have been taken in every month from March to September, but most nests will be found in May and June. On the nest the bird sits very close, almost allowing itself to be caught.

The nest is a large, solid structure of dry grass, stems of herbaccous plants, fibrous shreds of bark, deal deaves, and similar materials. It is nearly circular, with a deep cup-like cavity in the centre, and this is nearly lined with fine grass rots, pine-needless of fine grass. It is always well concealed, and is placed in a thick branch of a tree, preferably perhaps a deader, in a thick bush, or in heavy herbage on a steep bank; but it is very seldom higher than 5 or 6 feet from the ground and usually lower han that. On one occasion in Simila I found a nest owing to the strange choice of the birds in lining material. There was a cort doornat at the diningroom door leading into the vasuadsh; and as we sat at hunch the birds kept coming and tearing fibres out of the mat in spite of the fact that the servants waiting on us were continuously passing backwards and forwards through the door.

Two to four eggs are laid, but the normal clutch consists of three

eggs. The eggs are regular and moderately broad ovals, with a slight gloss and a very smooth satiny texture. In colour they are a perfectly spotless, delicate, pale greenish-blue, of the tint usually known as " Hedge-Sparrow blue."

In size they average about 1.00 by 0.73 inches.

The nests of this species are often selected for the eggs of the Pied Crested Cuckoo (Clamator jacobinus) and the Indian Cuckoo (Cuculus micropterus).

THE JUNGLE BABBLER

TURDOIDES SOMERVILLEI (Sykes) (Plate viii, Fig. s, opposite page 176)

Description.-Length 10 inches. Sexes alike. The whole upper plumage dull earth-brown marked with paler and darker tints of the same; tail broad and full, slightly tipped with white and faintly cross-rayed; lower plumage paler, mixed fulvous and ashy.

Iris pale vellowish white: bill flesh-coloured, gape vellowish;

feet fleshy-white or vellowish-white.

Field Identification.-Found in noisy squeaking parties, usually on or close to the ground; a moderate-sized dirty-looking brown bird with a pale yellowish eye and a broad longish tail; all plumage very loose and untidy. One of the best-known birds of India.

Distribution.-The Jungle Babbler is found throughout the whole of the Peninsula of India from the Salt Range and Kohat in the north-west along the foot of the Himalayas to about the valley of the Brahmaputra in the north-east. It is divided into five races.

T. s. sindianus is a particularly pale race found in the Punjab and Sind down to Mount Aboo, T. s. terricolor is found throughout north and east India within a line drawn roughly through Meerut, Agra, Saugor, and Hyderabad to the Godavari delta. The typical race with a rufous tail is confined to a strip of the western coast from Bombay and Matheran to Kanara, below that grading into the dark T. s. malabaricus of Cochin and Travancore. A paler and greyer race, T. s. orientalis, occupies the rest of Southern India. A strictly resident species.

Habits, etc.-In the Jungle Babbler we have one of the few Indian birds which possesses a recognised popular name in both

English and Hindustani, in both cases due to the social behins of the species. The vernacular name is "Sathbhai," the Seven Brethren. while in English for some reason (possibly their loquacity), the birds change their gender and become the "Seven Sisters." It is often wrongly assumed in consequence that the parties always consist of seven birds; but "sath" is only a reflection of the phrase "panch sath" (5 or 7), an approximate phrase like "half a dozen."

This bird is found throughout the plains and the hill ranges up to about 4000 feet in the north and higher in the south, but it is usually scarce both in thick forest and in wet marshy country. In the more desert portions of Sind and Rajputana it does not occur. With these exceptions it is found in all types of country, and apparently having a decided preference for the neighbourhood of man it is a common bird in gardens both in towns and out in the

As indicated above, the Jungle Babbler is an eminently gregarious species, even to the extent that the parties in which it goes about do not break up in the breeding season. A sitting bird has only to be disturbed from its nest and the outcry that it invariably makes at once brings to the spot the other members of its clan. For in sorrow and in joy these Babblers are not divided; nor are they quiet. Although trees are a necessity for them, for when disturbed they immediately fly up into the branches, they feed for the most part on the ground, turning over dead leaves with incessant industry, all the while moving with a clumsy, hopping gait. As they do so they keep up a muttered concert of low remarks which at the slightest excitement break into a chorus of noisy, squeaking calls that aptly express their hysterical temperaments. Yet they are brave birds also, and at once rally to the support of any one of their number that is in difficulties, attacking his assailant. Although not in this respect quite as strong as the Large Grey Babbler (Argya malcolmi) they generally succeed in rescuing any of their party that falls into the clutches of the smaller hawks, who indeed treat them with respect. The captured bird grasps the assailant with its big, strong feet, and the remainder of the party fall on the latter pell-mell in a noisy, struggling mass till he is glad to let go his promised meal and decamp with the best grace possible. The flight is clumsy and ill-sustained, this species having the family habit of flying one by one for short

The breeding season commences at the end of March and continues into September. The majority of nests, however, contain fresh eggs

The nest is built in thick bushes or small trees at almost any

Thorn trees are commonly selected, and the nest is usually not particularly well concealed. It is a fairly deep cup, sometimes small and compact, but more usually rather loosely put together, of grass stems and roots. The lining consists of finer roots and occasionally of horse-hair.

The full clutch consists of three or four eggs.

The eggs are usually rather broad ovals, somewhat compressed at one end, of fine smooth texture with a high gloss. The colour is "Hedge-Sparrow blue," varying from a pale shade to a deep intense colour in different eggs. There are no markings.

The egg measures about 1.01 by 0.78 inches.

This bird is a favourite foster-parent for the Pied Crested Cuckoo (Clamator jacobinus) and the Common Hawk Cuckoo (Hiërococcyx varius), and it is difficult to distinguish between the eggs of host and parasite, so close is the resemblance,

Description.-Length 9 inches. Sexes alike. Upper surface of head and neck dingy grevish-white; upper plumage ashy-brown, streaked on the back with brown and white; wings and terminal half of the broad full tail dark brown; ear-coverts brown; chin, throat, and breast dark brown, the feathers edged with grey; remainder of lower plumage brown, fulvous down the centre of the

Iris creamy-white; bill, eye-patch, and legs dead white with a

Field Identification.-Very similar in habits to the Jungle Babbler, but recognisable by its whitish head and dark brown throat and breast.

Distribution.—This species of Babbler is confined to Ceylon and Southern India, south of a lline drawn through Belgaum, Hyderabad, and the lower Godavari Valley. The Indian birds are known as T. s. affinis, while the typical race from Ceylon differs in having the head concolorous with the back and the streaks on the back less well-

defined. It is a strictly resident species.

Habits, etc.-The White-headed Babbler is a plains species, and only ascends the various hill ranges up to a height of about 2000 feet. to the Jungle Babbler, going about in noisy, excitable parties that feed on the ground and fly up into the trees when disturbed. They hop and climb up the larger branches of the tree to the top, and then fly off to the next tree singly in extended file, with slow and laborious flight, a few rapid strokes of the short round wings alternating with again to the ground, followed in succession by the others of the flock.

The call is a loud sibilant or whispering sort of chatter,

The breeding season is somewhat extended and odd nests may be found almost any time in the year. The majority of eggs are, however, laid from March to July. The nest is the usual large. loosely-constructed cup of the genus, built of roots, fine twigs, and

The clutch consists of three or four eggs; they are fairly regular ovals, fine and hard in texture and exceedingly glossy. In colour

they are of a deep unmarked greenish-blue.

This is a favourite foster-parent for the Pied Crested Cuckoo

Description.-Length 9 inches. Sexes alike. Whole upper plumage pale fulvous-brown, each feather streaked with dark brown; quills brown, lighter on the outer webs; tail long, graduated, and olivewhite; lower plumage pale fulvous, albescent on the abdomen, and the sides of the breast faintly striated.

yellow; legs olive-yellow, claws dusky.

Field Identification.—A smallish bird, brown with dark streakings on the upper surface, and fulvous and whitish below; tail elongated and graduated. In flight looks singularly like a miniature hen Pheasant. Lives in parties in every type of open ground with bushes or grass clumps; one of the commonest birds of Northern India.

Distribution.-The Common Babbler extends from Afghanistan, Baluchistan, and South-east Persia right through India, from the outer fringe of the Himalayas east to Western Bengal and south to the Palni Hills and Rameswaram Island. With this wide range it has been divided into three races. The large and pale form from huttoni; a dark form with heavy streaking on the upper surface and brightly rufous under parts named by Hume A. c. eclipes, inhabits

the plateau from Rawal Pindi and the Salt Range to Peshawar; and

This species does not occur higher than 4000 feet in the Outer Himalayas and it avoids the higher elevations in all the continental hill ranges. In Southern India it is less common and very local.

A strictly resident species.

Habits, etc.-This bird avoids swampy ground, where it is replaced throughout Northern India by a more richly-coloured and larger species, the Striated Babbler (Argya earlii), in which the chin and throat are rufous with dark streaks. It also dislikes heavy forest and hill areas except those low elevations within easy reach of their bases. It is essentially a bird of open country, and in Northern India is one of the most common and familiar of species found everywhere alike, in cultivation and in gardens, amongst waste rocky ravines studded with bushes, and in the desolate semi-desert areas; ground cover is the only factor that it insists upon, for it is somewhat of a skulker and prefers the neighbourhood of the ground, seldom mounting into trees or venturing right out into the open. It particularly favours those wide open plains where patches of cultivation shaded with occasional tamarisk and kikur trees alternate bushes of the uck and the wild caper ring their monotonous changes.

This Babbler lives in small parties of six or eight individuals and such parties may be met with throughout the year, even in the breeding season. They feed mostly on the ground, hopping rapidly about with a bouncing gait, and their long tails trailing. At the slightest alarm they take refuge in the bushes or grass near whose shelter they have been feeding. When leaving one patch of cover for another they fly off singly, one after another, with a weak parachuting flight, the wings extended, and the tail partly spread, looking for all the world like a number of miniature hen Pheasants breaking cover. As they fly they utter a low undertoned warbling

whistle, first one bird and then another in a sort of rippling chorus.

The breeding season is very extended, and nests have been found in every month of the year; but the majority will be found from March until May and again from July to September, as the species is double-brooded. The nest is a neat and compact cup, rather large for the size of the bird. There is usually a deep outerfoundation of fine thorny twigs, coarse roots, bents, grass stems, and similar materials, while the actual cup is composed of finer grass stems and roots, often lined with a few hairs or fine mimosa leaves. It is usually built fairly close to the ground at a height of about 3 feet, in a thick bush or a clump of grass, and is generally well concealed. An occasional nest, however, may be found in higher and more open situations, as for instance 8 feet from the ground in a fork of a kikur tree.

The usual clutch consists of three or four eggs, but occasionally

only two are laid. The eggs are a moderately elongated oval, slightly compressed

towards one end. They are glossy, often brilliantly so, and of a delicate pure spotless somewhat pale blue. There is very little variation in the colour of these eggs.

This Babbler is frequently selected as a foster-parent by the Pied

THE LARGE GREY BABBLER

ARGYA MALCOLMI (Sykes)

Description.-Length 11 inches. Sexes alike. Upper plumage dull brown, the feathers of the upper back with dark centres; forehead ashy-grey with fine white shaft-stripes; wings dark brown, the outer flight-feathers hoary brown on the outer webs, the others edged with the colour of the back; entire lower plumage fulvescent grey; tail full and graduated, pale brown, the central pair of feathers crossrayed, the three outer pairs white and the next pair edged with white. Iris bright yellow; bill dark brown, lower mandible fleshy; legs

fleshy-vellow.

Field Identification. In noisy squeaky parties in open cultivation ; a typical sandy-brown Babbler easily recognised from the other species by its size and the broad white edge to the tail, conspicuous in flight.

Distribution.—This fine Babbler is locally common throughout the greater portion of the plains of India from a line roughly through Ludhiana, Ferozepore, and Mount Aboo in the North-west to the western boundary of Bengal, and south to the Nilgiris and Salem.

It is a strictly resident species.

Habits, etc.—This Babbler does not differ in any material respect in habits from the more numerous Jungle Babbler, though it is not quite so untidy in plumage. It is particularly a bird of cultivated plains where small groves alternate with open fields and it is never towns and about small villages. Half of its time is spent in the small forms of life that form the major portion of its diet; seeds and

This is one of the most gregarious species that it is possible to

imagine. The birds live in small parties of six to a dozen individuals, and these parties do not break up in the breeding season, even though members of them may have nests and eggs in the vicinity. Woe to any enemy that falls foul of one of the party; the remainder fall on it tooth and nail, and in this respect the species is more valiant even than the Jungle Babbler, a fact that the smaller hawks recognise, generally not attempting to molest them. These Babblers are very noisy, with the hysterical squeaky calls typical of the family uttered on the slightest provocation.

The nest may be found in any month in the year, though the majority of the birds breed from March until August. Possibly more than one brood is reared. The nest is built at a height of some 4 to 10 feet from the ground and is usually ill-concealed, depending for its protection more on the fact that it is generally placed in some thorny tree of the mimosa type. It is a large, loosely-woven but fairly neat, cup-shaped structure, made of fine roots, small sticks, and dry grass, with generally an outer casing of thorny twigs. The cup is sometimes lined with fine grass and roots or horse-hair.

Two to five eggs are laid, but the normal clutch consists of four. The eggs are indistinguishable from those of the Jungle Babbler, rather broad ovals, compressed at one end, very glossy and smooth in texture, and an unmarked "Hedge-Sparrow blue" in colour.

They measure about o on by o 77 inches.

This Babbler is frequently selected as a foster-parent by the Pied Crested Cuckoo (Clamator jacobinus).

THE DECCAN SCIMITAR-BABBLER

POMATORHINUS HORSFIELDII Sykes (Plate iv, Fig. 2, opposite page 72)

Description.-Length 10 inches. Sexes alike. Upper plumage dark earthy-brown tinged with rufous and darker on the head; a white eyebrow-line edged above with black over the eye; sides of head and neck and a band bordering the breast and abdomen

blackish-brown; chin, throat, breast, and abdomen white; flanks and a patch under the tail slaty-brown. Iris brown or crimson; bill yellow, dusky at base of upper mandible; legs greenish-plumbeous,

Bill long, curved and compressed, recalling a scimitar in shape; short rounded wings; long graduated tail; shape rather ungainly. Field Identification.—Lower India only. Scimitar-shaped bill, dark plumage with the conspicuous white evebrow and white plastron

Distribution.-Confined to the Indian Peninsula and Cevlon. This Scimitar-Babbler is divided into a number of races distinguished on small details of coloration of the plumage and size of the bill. A grevish form P. h. obscurus is found in Mount Aboo, the Central Provinces and the area round Khandesh. The typical race is found from Khandala to Goa, in Mysore and in Orissa and the Upper Eastern Ghats. The rich olive-brown form P. h. travancoreensis occupies the Lower Western Ghats from North Kanara to Travancore, including the Nilgiris. P. h. maderaspatensis is confined to the Lower Eastern Ghats from the Krishna Valley southwards. P. h. melanurus of Ceylon is a bright ferruginous bird.

This species occurs both in the plains and in the hill ranges up

to at least 8000 feet. It is strictly resident,

Habits, etc.-This Scimitar-Babbler is common in evergreen jungle, in bamboo thickets, in thorny scrub or in dense bush jungle on hill-sides. It is usually found in pairs or in small parties of four or five birds and sometimes double this number collect together or join the mixed hunting parties.

Individuals keep in touch with each other by a variety of mellow bubbling and whistling calls and when excited break into the torrent of loud shricks and whistles which are used by all the Scimitar-Babblers. In the case of pairs the male acts as leader and is followed about from one bush or tree to another by the female who acknowledges every one of his musical whistles with a subdued kroo-kroo or kro-kant. Although very shy and seldom showing themselves they readily respond to a decoy whistle and may be called long distances by such an imitation. When disturbed the birds hop along the branches with great agility as if to get under way before taking to wing.

The food consists of grubs, worms, insects and the like and in search of it the birds descend a good deal to the ground where they dig vigorously with their shapely bills in the earth, cling to the face of banks and probe the moss and bark of the trees, and when the cotton-tree is in flower they join the many species that rifle the

blossoms for insects and nectar. The breeding season extends from December to May.

The nest is a loosely-constructed globular structure, with the entrance at one side, placed on the ground in thick herbage or low and roots, and is so flimsy in build that it falls to pieces on removal. There is no lining to the egg cavity.

Three to five eggs are laid.

The egg is an elongated oval, slightly compressed towards the

small end. It is very fragile, smooth, and satiny in texture, with very little gloss. The colour is pure white.

The egg measures about 1.08 by 0.77 inches.

THE RUSTY-CHEEKED SCIMITAR-BABBLER

POMATORHINUS ERYTHROGENYS Vigors

Description.—Length 11 inches. Sexes allie. Upper plurnage, and the exposed part of the closed wings olive-brown; centre of whole lower plurnage white, atriped with very pale grey on the chin and throat; forchead, sides of head and neck and sides of lower plurnage chestuatu, washed with olive on the sides of the breast and

Iris yellowish-white; bill light horny; legs brownish-fleshy.

Bill long, curved, and compressed, recalling a scimitar in shape. Tail long and graduated; wings small and rounded; general build rather ungainly.

Field Identification.—Himalayan form. Curved bill, olive-brown upper parts and chestnut and white under parts distinctive, combined

with shy habits in undergrowth and melodious call.

Distribution.—The Kusty-checked Scimitur-Babbler has a wide distribution, being found along the whole length of the Himalayas through Assam, Burma, and Tenasserim to Yunnan and China. It is divided into several races, of which two are found in the Himalayas and come into our area. The Western race is the typical one and is found from the Murree Hills to about Mussoorie. The Eastern race is known as P. e. harnignoni and differs in its slightly smaller size and in having the whole chin, throat, and upper breast dark salty mingled with white. It is found from Garlwal to justemediate in bale from the western edge of this range are very intermediate in bale from the western edge of this range are very

In the Western Himalayas this Scimitar-Babbler is found most commonly between 3000 and 7000 feet, though it certainly occurs down to 2000 feet and up to 10,000 feet. The Eastern form occupies a slightly lower zone between 1000 and 7000 feet. It is a strictly resident species and appears to change its elevation very

slightly with the season.

The Staty-baded Scimitar-Babbler (Pomatorhima schisticept) is another Himalayan species found at low clevations from Kangra to Assam and into Burma. The upper parts are olive-brown with the top of the head dark-state; a white line over the eye and the rich margon-chestrus idde with white streks are distinctive.

Habits, etc.—This bird is a dweller in dense undergrowth, whether



1, Variegated Laughing-Thrush. 2, Yellow-eyed Babbler. 3, Purple Sunbird.
4. Common Babbler. 5, Streaked Laughing-Thrush. (All about † nat. size.)

in the form of thick grass and bushes on treeless hill-sides, or forests. with heavy secondary growth. The greater part of its life is spent in the bushes, but it feeds a good deal on the ground under cover, shuffling amongst dead leaves, and when disturbed in this occupation it can make off at a good speed with a succession of long, bounding hops like a rat. It is a social species, usually found in small parties, whose presence would not be suspected from their skulking habits were it not for their noisiness. The call of the male consists of a pair of notes, the second rapidly following the first and being about an octave lower. If the female is within earshot, as she usually is, she replies with a single note immediately after the second note uttered by the male, so that the three notes together make a mellow whistle kor-quee-oh, which to the uninitiated sounds like the call of a single bird. This familiar duet, varied with a clear quoip, is audible some distance away. They have also a hard, scolding note reminiscent of that uttered by many of the Babblers and the Tree-Pie. A faint feeding-note tep-tep is only heard when the birds are close at hand. These birds respond readily to an imitation of their calls and may be decoyed in this manner. They seldom leave cover and come into the open, but when they do take to wing the flight is swift and strong though the short wings combined with the heavy bill and tail give the bird a curious, ungainly appearance. This species is said to indulge in a habit of dancing like other members of the genus.

The food consists of grubs, beetles, earthworms, and various insects mostly obtainable on the ground, but berries are also eaten.

a breading season lasts from Angil to June

The nest is a domed structure with a broad opening high on one side; it is loosely constructed of coarse grass, dry ferns, dead leaves, and ferr roots, and there is no particular lining. It is placed on the ground in thick herbage near the edge of clumps of brushwood or scrub-jungle.

Two to four eggs are laid; they are long, narrow ovals, fine in texture with a fair closs and pure white in colour.

In aire they average about 1.11 by 0.8 inches

THE DIRECTIC DELLIED DADDLED

Departer symphytims (Franklin)

Description.—Length 5 inches. Sexes alike. Front half of crown reddish-brown; upper plumage, wing, and tail olive-brown, the tail cross-rayed, sides of the face and entire lower plumage bright fulvous.

es-rayed; sides of the face and entire lower plumage bright fulvous.

Iris light-brown; bill livid pale horny; legs very pale fleshy.

The feathers of the forehead have stiff shafts. The tail is much graduated, the outer feather only reaching to the middle. Field Identification.—A small olive-brown bird with bright rufous under parts; a white throat-patch in one race. Found in small parties

skulking in thick cover.

Distribution—Confined to India and Ceylon and divided into three neces. The typical rate is found in a wide area cast of a line from the Kumaon Bhabar through Jhami, Mhow, the Satpuras, Jalma, and Hydernabd to the Krishna River. It occurs as far cast as Midnapore. To the west and south of this area, from Sambhar and Mount Abo on the north down to the extreme south, it is replaced by D. h. albogularii. This race differs in its lighter coloration and in having a well-defined while patch on the chin and throat and a tinge of white on the centre of the abdomen. D. h. phillipsi of Ceylon is similar to the latter but has a large Phill and paleer under parts.

The closely allied Red-capped Babbler (Timalia pileata) is common in the extensive grass plains along the terais and duars of the north-east, extending also into Assam and Burma and a considerable part of Bengal. The deep rufous crown, white streak over each eye, olive-brown upper parts, deeply-randuated tail, and the white breast with

fine black streaking are distinctive.

Habit, etc.—The Rufuus-bellied Habbter is a bird of thick over. It may be found in scrub-jungle, in tall grass interspersed with thorn bushes, or in the patches and hedges of tall cuphorbia plants which are a feature of many parts of Southern India. In such cover it is found in small parties of four to eight birds, which keep up a fow cheep cheep, varied by harsh tittering notes. It is a most invertext subluck, keeping as far as possible out of sight, one bird following another from bush to bush. On taking alarm the members of a party promptly dive into the thickest portions of the undergrowth and disperse in all directions, though they soon reassemble when the alarm is over.

The breeding season of the typical race is well defined throughout its range, being in the monsoon from June to August. Most eggs are laid in July. In the other Indian race it varies from the middle of

April to the middle of October, irrespective of locality.

The nest is built on, or very close to, the ground, either amongst dead leaves, in course grass, or in subsets. A favourite situation is in amongst the roots of a hamboul bushes. A favourite situation is in amongst the roots of a hamboul bushes of the root of a hamboul bushes of the root of the roots of a hamboul bushes of the root of the roots of the ro

The usual clutch consists of four eggs, but often there are only three. The eggs vary in shape from short and broad to moderately long ovals. The texture is fine with a variable amount of gloss. The ground-colour is pure white, spotted and speckled with shades of red, brownish-red, and reddish-purple. These markings vary in character, but tend to collect in a cap or zone on the broad end.

The egg measures about 0.70 by 0.53 inches.

THE YELLOW-EYED BABBLER

CHRYSOMMA SINENSIS (Gmelin)
(Plate iii, Fig. 2, opposite page 48)

Description.—Length y inches. Sexes alike. The whole upper plumage trafescent-brown, changing to cinnamon on the exposed portions of the wings; a patch in front above and below the eye, and the whole lower plumage white, tigned with fullows on the flanks, abdomen, and under the tail. The tail is long and graduated, and the feathers are faintly cross-race.

Iris yellow, eyelids deep orange; bill black, yellowish behind

nostrils; legs pale orange-yellow.

Field Identification.—A small rufous bird with white under parts and a rather long full tail; orange cyclids are conspicuous. Found in parties in undergrowth.

Distribution.—The Yellow-eyed Babbler is a common bird of very wide distribution occurring throughout India, Burma, and Siam, and in China. As is to be expected with this wide range it has been divided into several races of which three occur within our area. They are distinguished by death and tin of coloration.

The typical race, originally described from China, is found through

Madras, the Central Provinces, and Belgaum.

A dark form, P. s. saturatior, occurs in Nepal, Sikkim, and the

A pale form, P. s. hypoleucus, is found in Sind, Jodhpur, the
North-west Frontier Province, portions of the Puniab, the United

North-west Frontier Province, portions of the Punjab, the United Provinces, Khandesh, and Kathiawar. While strictly speaking a plains bird, the Yellow-eyed Babbler is found along the outer Himalayas to a height of 4000 feet, and in the Nilgiris it is

found up to 5000 feet. A resident species everywhere.

Habits, etc.—While occasionally met with in pairs this pretty little usually goes about in parties. It avoids forest and wanders about in open country frequenting tall grass, low seroh, and patches of bushes, being also a familiar garden burd. In habits it is a typical Babbler, and while rather inclined to stulk in thick cover is apt to be noisy. It appears to visit the ground very seldom. Some of its notes are quite sweet, and might almost be dignified by the name of song.

Small birds that live in parties in thick cover have all much the same habits. The individuals work from stem to stem unseen down in the thicket, picking insects, caterpillars, and their eggs from the leaves and twigs. Then one bird works to the top and suns itself for a few seconds and utters a snatch of song before plunging again

I have seen a bird at the nest feign in a most realistic manner to be wounded, swaving with wings and tail outspread on a twig, as if

The breeding season is from June to September.

blades of grass and long strips of fine fibrous bark, coated exteriorly with cobwebs and gossamer threads and lined with fine grass stems and roots. It is generally built in gardens about 4 to 6 feet from the

The normal clutch consists of five eggs,

The egg is a very broad oval, rather obtuse at the smaller end. The texture is fine and smooth with a slight gloss. The groundcolour is pinkish-white, and the markings are of two main types; in one the egg is so thickly and finely mottled and streaked all over with brickdust-red that the ground-colour is almost concealed; in the other the egg is sparingly and boldly blotched and streaked with the same colour, besides exhibiting a number of pale inky-purple clouds. Combinations of both types occur.

The egg measures about 0.73 by 0.59 inches.

THE SPOTTED BABBLER

PELLORNEUM RUFICEPS Swainson (Plate ix, Fig. 4, opposite page 208)

Description.- Length 6 inches. Sexes alike. Top of the head dull rufous; a whitish line over the eye; remainder of upper plumage including wings and tail olive-brown, the tail-feathers tipped with white; sides of the head pale rufous marked with black and brown; lower plumage white somewhat tinged with fulvous and becoming olivaceous on the flanks, boldly streaked with black on the breast and sides; a patch under the tail olive-brown and white.

Iris reddish-brown; bill dark brown, lower mandible whitish; legs fleshy-white.

Field Identification.—A small olive-brown bird, whitish below,

with a rufous can and heavily streaked breast. Very shy and found skulking in thick undergrowth. Attention usually attracted to it by the loud call-note.

Distribution.-Widely distributed throughout India, Assam, and Burma, eastwards to the Malay Peninsula, Annam, and Cochin-China. It is divided into several races, of which we are concerned with four; these vary only in depth and tone of coloration and the boldness of marking on the sides of the neck. P. r. punctatum occurs in the Western Himalayas from Dharmsala to Garhwal. From Nepal eastwards along the Himalayas into Assam and Burma there is P. r. mandellii. The species appears to be wanting across the plains of Northern India, but the typical form is found in Peninsular India south of Khandesh, Pachmarhi, and the hills of Chota Nagpur, until in Travancore it is replaced by P. r. granti. All the races are found at elevations from 1500 to 4000 feet, and occasionally higher, and are resident birds.

Habits, etc.—The Spotted Babbler is more often heard than seen. Except in the breeding season it is a social species, and usually goes about in small parties which keep to low brushwood and bamboojungle. It never ascends into trees, and spends much of its life on the ground searching for food amongst fallen leaves and tangles of grass. In such localities it is hard to approach and observe as it is very shy, and the sound of footsteps sends it hastening away through the bushes with a harsh, churring alarm note kraa. But feeding at their ease the parties are rather noisy, and keep up a continuous live. The call is a clear mellow whistle, wheat-ever or three-cheerer. the first syllable short, the second long and emphasised. This call may also be expressed by the words pretty-dear. It is easily imitated, and the bird responds freely to the imitation. There is also a sweet song in the breeding season, of five notes, repeated several times,

The breeding season is from March to May, though second broods may be found until August. The nest is placed on the ground under the shelter of a stone or bush, or occasionally 2 or 2 inches above it in the base of a clump of bamboo. It is generally amongst fallen leaves and similar rubbish, and is a large globular

The clutch consists of two to four eggs. In shape they are broad regular ovals, compact and fine in texture, with a slight gloss. The speckled and spotted all over with reddish-brown and with secondary spots of pale grey and neutral tint.

THE QUAKER-BABBLER

ALCIPPE POIOICEPHALA (Ierdon)

Description.-Length 6 inches. Sexes alike. Top of head ashygrey; remainder of upper plumage olive-brown, becoming ferruginous on the wings and tail; sides of the head and neck ashy-brown; lower plumage creamy fulvous, darker on the breast and flanks and under

Iris slaty-grey; bill horny brown; legs grevish-fleshy.

Field Identification .- A small olive-brown bird with paler under parts and a greyer head. Found in small parties in undergrowth

and forest chiefly in the hills of Peninsular India.

Distribution.-Widely distributed in several races through India, Assam, Burma, and Siam. The typical and most richly-coloured form is found along the Western Ghats from about Goa down to the south of Travancore, occurring at elevations from 2000 feet to 600 feet. A paler and greyer race, A. p. brucei, occurs irregularly in the rest of the Peninsula south of a line from Kathiawar, Pachmarhi, and Parasnath Hill at much the same elevations. A resident species.

The smaller Nepal Babbler (Alcipte nepalensis), common in the lower Eastern Himalayas, Assam, and Burma, is easily distinguished

by a white ring round the eye and a blackish line over it.

Abbott's Babbler (Malacocincla sepiaria) is found in the Eastern Himalayas and Assam at low elevations. The plumage is dark brown with the under parts paler, the throat white and a rufous patch under the tail. Although a forest bird and a skulker it is confiding and tame. Habits, etc.-There is very little to say about the habits of the

Quaker-Babbler. It is an undistinguished little bird which goes about in parties of four or five individuals up to twenty or more which are confiding enough when undisturbed but shy and wary once their suspicions are aroused. They keep principally to patches of forest, but may also be found in bush-jungle, orange groves, and similar localities. They seldom or never visit the ground, and prefer as a rule to keep to undergrowth. They frequently, however, climb higher into the trees, ascending even to the topmost branches. The members of a party act independently of each other, but keep up a general communication amongst themselves by continually calling and answering as they move about. The short song of seven or eight notes is quite pleasing. Little seems to be recorded about their food, but the parties spend all their time searching the leaves for insects.

The breeding season seems to be very poorly defined, and nests of the typical race are said to have been found in every month of the year. The Quaker-Babbler may be double-brooded, as January to April and again July, August and September are the principal months in which nests have been recorded

The nest is usually built in the depths of forest, and in such shady

spots is built in small trees or bushes at a height of some 4 to 8 feet from the ground. It is deep and cup-shaped, composed externally of moss and dead leaves, and lined with the fine roots of mosses and ferns. The nest is usually fixed in a fork or suspended from two or three twigs, and is as a rule quite conspicuous, little effort at conceal-

The clutch consists of two or occasionally three eggs.

The egg is a moderately broad oval, somewhat compressed towards the small end. The shell is fine and somewhat glossy. The groundcolour is pale salmon marked with primary blotches and broad smudges the markings often being reduced in size to specks and spots, while

The egg measures about o 80 by o 60 inches.

THE BLACK-HEADED BARRLER

Description.-Length 5 inches. Sexes alike. The whole of the top and sides of the head black; the whole upper plumage fulvous brown; wings dark brown with the exposed parts fulvous brown; tail brown: lower plumage dull white, changing to olivaceous on the

legs pinkish-grey to pale plumbeous.

Field Identification.-Hills of South-western India. A small bird,

is found in parties in dense forest undergrowth.

the Western Ghats from Belgaum to the Nilgiris, being replaced in the Cochin and Travancore Hills by another race R. a. bourdilloni which has the black largely replaced by sooty-brown. A third race R. a. nigrifrons is found in Ceylon. This has the top of the head the same colour as the back and the black is confined to a broad band through each eye joining across the forehead. All three races occur

Habits, etc.- This quaint little bird must soon be known to all who spend much timetin the forests of Coorg and the Wynaad, the Nilgiris and Travançore. It is very common in the dense marshy

are found throughout the year and their members are exceedingly

active. As they move about the birds utter a continual low chattering,

jungles or in the heavy green thickets that border the streams, in canebeds and in bamboo-jungle and it is also a bird of the evergreen forest It does not as a rule ascend the trees but keeps to the undergrowth and no thicket is too dense for it, though it has something of a preference for the edges of roads and paths and clearings. In such cover the Black-headed Babbler goes about in parties of five to ten birds or even. in troops of anything up to a couple of dozen individuals. The flocks



Fig. 9-Black-headed Babbler (\$ nat. size)

a harsh rather subdued chur-r chur-r and a characteristic habit is for a bird that has ventured too high in the vegetation to drop perpendicularly like a falling leaf into the thickets below at the slightest hint of an alarm. The food consists of insects and their larvæ.

This species is remarkable for the habit of building "cock-nests" which are apparently intended for roosting purposes. Dozens of such nests may be found at all times of the year in the jungles where the birds are common, for no effort is made to conceal them. They are very loosely and untidily constructed, thick masses of bamboo leaves with the entrance at the side and they never seem to be lined.

The true nest is much smaller and more tightly and neatly woven and it has a lining of black rootlets or fine grass. It is also much more carefully concealed, being placed in tangles of reeds and grass, in thick

creepers or in bushes, usually only a foot or two from the ground. These nests also may be found in any month of the year, but the breeding season proper is said to be from May to July in the Nilgiris and a little earlier in Travancore.

The clutch consists of two eggs.

The egg is a moderately broad, very regular oval, only slightly compressed towards the smaller end. The shell is fine and satiny but has only a slight gloss. The ground-colour is white or faintly greyishwhite, profusely speckled with minute dots of brownish and purplishred, the dots being slightly more numerous towards the larger end.

It measures about 0.75 by 0.55 inches.

THE BLACK-HEADED SIRIA

LEIOPTILA CAPISTRATA (Vigors)

(Plate iv, Fig. 4, opposite page 72)

Description.-Length 9 inches. Sexes alike. Top and sides of the head black with a bushy crest; the whole of the body plumage bright rufous except the back between the wings which is grevishbrown; wings variegated bluish-grey, black and rufous with a white bar across the coverts; tail long and graduated, black with a broad sooty-grey tip, all feathers with a rufous base diminishing rapidly

Iris reddish-brown; bill black; legs fleshy-brown,

Field Identification.-Himalayan form, A graceful rufous bird with dark crest, wings, and tail; purely arboreal and, except when

from the Hazara country to the Dafla Hills. It is divided into three of this range to about Naini Tal. In Nepal it is replaced by L. c. nigriceps which is more rusty-red in tone and has the back reddishbrown. It is also somewhat smaller. This form grades through Sikkim and the Chumbi Valley into L. c. baileyi of Bhutan and Southern resident species except for some seasonal altitudinal movements,

Habits, etc.-The Sibia is a very common bird in portions of its range, as for instance at Simla and Darjeeling, where its striking not naturalists. It is a purely arboreal species, spending most of its time at heights of 20 to 50 feet from the ground, and only rarely descending to the undergrowth. Out of the breeding season it is commonly found in parties of half a dozen birds, which usually keep to themselves but sometimes join the mixed hunting parties temporarily.

They are very active birds, running and gliding through tangles of creepers, and are also accomplished gymnasts, clinging to slender stems, head downwards, to probe the blossoms for insects. Superficially they greatly resemble the Laughing-Thrushes. They have the same habit of flitting very rapidly up a tree from branch to branch, keeping close to and partly hidden by the trunk, but they are more ready to fly from bough to bough and tree to tree and are by no means such skulkers. They come freely into the open and often launch into mid-air in open spaces amongst the trees to catch insects on the wing ; but being naturally shy they disappear again into cover at the least

The plumage is not quite so loose and fluffy in appearance as that of the Laughing-Thrushes. The crest is generally held raised. The flight is heavy with a hard noisy beat of the wings, and is rather erratic and jerky as if the bird had difficulty in keeping straight. There is a characteristic habit of flying to a tree-trunk and clinging to the bark while picking some insect or larva from it.

The Sibia has a variety of notes. In winter when the birds are in parties they converse continuously with a faint ti-te-te note, or a little chittering sound similar to that of a Tit, uttered in concert by several of the party, some concealed in the foliage, others exposed to view on open boughs where they perch, jerking their tails suddenly up and down and occasionally flicking the wings, turning from side to side, eternally restless. A loud scolding note tchaa-tchaa appears to be an alarm note. During the breeding season the woods resound with their loud ringing whistle titteree-titteree-tweeye, which has an astonishing thrill of joy and gladness in it.

The breeding season lasts from May to August, but most birds do not nest till the rains have commenced

The nest is a neat cup of green moss lined with black moss roots, grass, pine-needles, or fibres. It is built at heights from 10 to 50 feet from the ground in deodars, hollies, and other trees, and is often well concealed close to the trunk or in foliage; a favourate situation is also in briers and creepers overgrowing a tree,

The clutch consists of two or three eggs. They are rather broad ovals elongated at one end; the texture is fine and there is very little gloss. The ground-colour is pale greenish-white or pale bluish-green.

The markings consist of splashes, smears, and blotches of pale and dark brownish-red with a few defined spots and hair-lines of

In size they average about 0.98 by 0.68 inches,

Description,-Length 6 inches. Male: The whole upper plumage dull olive-green, the throat and breast bright orange-yellow; remainder of lower plumage mixed olive-green and yellowish; a ring round the eye extending to the beak dull yellowish; the edges of the wingfeathers are brightly variegated with yellow, orange, crimson, and black; tail olive-brown, blackish at tip; the upper tail-coverts extend two-thirds of the length of the tail and terminate in a fine white line.

The female is duller in plumage and has no crimson on the wing. Iris reddish-brown; bill orange-red, base blackish in winter;

The tail is slightly forked with the feathers curved outwards at

Field Identification.-Himalayan species; usually in parties in undergrowth; dull olive coloration; coral-red bill, yellow eye-patch and bright shining yellow patch on throat and breast are conspicuous.

Distribution.-This species extends through the Himalayas and castwards into China, and southwards into Southern Burma and Siam. There are several geographical races, but all birds found in the Himalayas are attributable to the one form L. l. callipyga. This occurs throughout the Himalayas from Dharmsala on the west to Eastern Assam; also in the Khasia and Chin Hills and in Northern Arrakan. At the western end of its range it is not very common.

A common garden bird in Darjeeling is the Yellow-naped Ixulus a dark brown crest and a fulvous nape. It is found throughout the

Habits, etc.-The Red-billed Leiothrix (or Pekin Robin of the into the trees. The ordinary call-note is tee-tee-tee-tee. In the breeding season the cock has a delightful song of some variety and

The breeding season lasts from early April to September, the

majority of nests being found in May and June; there are probably two broods. For breeding, the birds largely affect well-watered and

The nests are cups of varying depth and solidity, and as a rule they are not well hidden. They are composed of dry leaves, moss. and lichen, some nests being entirely of moss, others of bambon leaves, so that there is a good deal of variety in their appearance; there is a lining of fine tendrils, or hair-like moss roots. The site of the nest is likewise somewhat variable, though all are placed within 10 feet of the ground. Some are suspended in a horizontal fork like an Oriole's nest, others in an upright fork such as a Bulbul would choose; others again are built between several upright shoots like the nests of the Reed-Warblers.

The normal clutch consists of three eggs.

The eggs are rather broad and blunt in shape, with a hard and close texture, and a certain amount of gloss. The ground-colour varies from white to a very delicate pale green or greenish-blue. They are speckled, spotted, and blotched, often very boldly, with various shades of red-brown and purple, mingled with streaks and clouds of neutral tint and pale lilac. The markings tend to form a zone round the broad end.

(Plate xi, Fig. 5, opposite page 264)

Description.-Length 5 inches. Adult male in full summer plumage: whole of the upper plumage black, except the rump which is greenish-yellow, but the head and back are usually mixed with yellow to some extent; two white bars across the wing, and the quills narrowly edged with yellow; entire lower plumage deep yellow, duller and greenish below the breast. In winter the black

on the body-feathers is almost all lost, and the yellow becomes paler. Female at all seasons: greenish-yellow throughout, yellow predominating on the lower surface and green on the upper; wings dark greenish-brown with greenish-white edges to the feathers and a broad white bar across the shoulder.

Iris yellowish-white; bill slaty-blue, black along culmen; legs slaty-blue.

The feathers of the rump are remarkably soft and copious. Field Identification .- A quiet little greenish-yellow bird, with dark wings and tail and a broad white bar across the wing, and in some cases much black on the upper parts, which creeps about in garden trees. Has a curious breeding flight. Marshall's Iora (Ægithina nigrolutea), common in lower Con-

tinental India from Delhi to Khandesh, may be distinguished by the bright golden collar and large amount of white in the wings and tail,

Distribution.—The Iora is found over a very wide range of country throughout India, east of a line through the head of the Gulf of Cambay to Mount Aboo and Gurdaspur, Ceylon, Burma, Siam, and the Malay Peninsula to Borneo. It is divided into several races, of which three occur in India proper. E. t. multicolor, the darkest race with most black in the plumage, is confined to Ceylon and Rameswaram Island. E. t. humei, an intermediate race which also grades into Marshall's Iora, occupies the whole of India south of a line roughly from Mount Aboo through Central India to Orissa. The typical race occupies the rest of the Indian range merging into Æ. t. septentrionalis in the Punjab. In this the black on the upper parts of the male in breeding plumage is largely obsolete, diminishing in extent from east to west. All races are found in the plains and lower hills up to about 3000 feet, or locally even to 5500 feet, and

The lively and acrobatic Red-tailed Minla (Minla ignotineta) found in the Eastern Himalayas and the hills of Assam is fairly well known at Darjeeling. The black and white head, brown back and yellow under parts are well set off by brilliant scarlet in the wings

Habits, etc.-The Iora is a familiar garden bird in the greater part of India, frequenting the outskirts of villages and cultivation and the edges of forests and scrub-jungle. It is usually found in pairs, although occasionally two or three may be hunting in the same tree for the insects that form their food. It has a variety of

In the breeding season the Iora has a striking display in which it flies up into the air and then spirals down to its perch again, with all the feathers, especially those of the rump, spread out until it looks almost like a ball; while descending it utters a strange protracted its wings and still uttering the sibilant note. Then, too, the rump-

The clutch varies from two to four eggs.

The egg is a moderately broad oval, slightly pointed towards the smaller end, fine in texture but with practically no gloss. The ground-colour is pale creamy or greyish white, with streaky longitudinal markings of grey and neutral tint, mostly at the broad end. Some eggs are erythristic in character with the ground-colour pinkish and the markings reddish.

The egg measures about 0.70 by 0.55 inches.

IERDON'S CHLOROPSIS

CHLOROPSIS JERDONI (Blyth) (Plate iv, Fig. 3, opposite page 72)

Description,-Length 7 inches. Male, entire plumage bright green except for the following markings: a black mask extending from the nostril to the eve and thence to the lower throat broken by a broad moustachial streak of bright purplish-blue; forehead and a broad band behind the black mask greenish-yellow; a patch of very bright malachite-blue by the bend of the wing.

The female resembles the male, except that the black mask is replaced by pale bluish-green with a bright greenish-blue moustachial streak.

Iris brown : bill black : legs pale blue.

Field Identification. An active arboreal bird, particularly fond of feeding at the parasitic Loranthus flowers. Bright green, a black throat-patch broken by a purplish-blue moustachial streak in the male, a bluish-green throat-patch in the female. In both sexes the

throat-patch is faintly bordered with vellow.

Distribution.- The genus Chloropsis, for which there is no English name, except the somewhat misleading one of the Green Bulbuls, contains a number of species of bright plumage, in which green predominates. They are found in India, Ceylon, Burma, Siam, the Malays, and China. Except for a large area in North-western India at least one form is found in every part of India, though no one form is predominantly familiar. To represent the genus, which is well known, I have selected Jerdon's Chloropsis. This occurs throughout the Peninsula of India from Sitapur, Fyzabad, and Basti in the north, Baroda and the Panch Mahals on the west, the Rajmahal Hills and Midnapore on the east, down to and including Ceylon. It is a strictly resident species.

Two other species occur in India. The Gold-fronted Chloropsis (Chloropsis aurifrons) may be distinguished by the orange-yellow crown and by having the throat between the blue moustachial streaks also blue. It is widely distributed along the Outer Himalayas from the Jumna eastwards, in the Chota Nagpur area, and in Southern India and Ceylon. The Orange-bellied Chloropsis (Chloropsis hardwickii), which has orange under parts and most of the wing dark blue, occurs along the outer Central and Eastern Himalayas,

Habits .- All members of this genus have the same habits. They are arboreal birds, keeping as a rule to the tops of trees, but they also occasionally descend into low bush growth and even tall grass. Many of them prefer heavy forest, but Jerdon's Chloropsis is generally found in open country, in gardens, orchards, and groves, or in the more open patches of forest. It lives in pairs which often join the mixed hunting parties and is a very active and restless bird. It is also something of a bully and drives other birds away from the flowers of the Coral-tree at which it is a regular attendant. At the nest it is very watchful and noisy and indeed often betrays the secret of its A particular characteristic of Jerdon's Chloropsis, and indeed of

other members of the group, is a remarkable proficiency in mimiery.

The members of this genus are favourite cage birds in the East

The nest is a small, rather shallow cup composed of fine roots, grasses, and tamarisk stems without lining, but covered exteriorly the end twigs of a branch of a tree at heights of 15 to 24 feet from the ground.

with a slight cless. The ground-colour is white or creamy-white,

THE BLACK BULBUL

Itcroscelis psaroides (Vigors)

Description.—Length io inches. Sexes alike. Ashy-grey throughout, darker above, and albescent below the abdomen; a loose untidy crest black, with black marks at the base of the beak and encircling the car-coverts.

Iris dark brown; bill and legs bright coral-red; claws horny-

Tail bluntly forked, with the outer feathers slightly curved outwards.



Fig. 10-Black Bulbul (nat. size)

Field Identification.—A dark-looking ashy-grey bird with coralred beak and black straggling crest; blunt forked tail creates a rough resemblance to a King-Crow: a bold, noisy bird with unpleasant squeaky calls. Purely arboreal in habits.

Distribution.—The genus Microschi is of somewhat wide distribution from India p₁, but only one species is found within the Indian Empire. This is divided into several races, of which two come within the area in this work. Both are mountain forms. The typical race is Himalayan, extending from Chitral and Hazara to Buttan; the exact limits of this range are not fully known, but on the west it has been observed at Kohat in winter, and on the east it apparently extends into Assam. In Ceylon and Southern India south of Matheran the race M. ps. gamessa, distinguished by the absence of the black line round the ear-coverts, breeds in the various ranges at elevations over 1000 feet.

In the Western Himalayas it breeds from about 4,000 to 7,000 feet; in the Eastern Himalayas from 200 feet; in in both areas a stearn Himalayas from 200 feet; in in both areas a sense of the word, flocks of this Bublus wander a good deal in sense of the word, flocks of this Bublus wander a good deal in one-breeding eason and may then be found in the plain areas contiguous to the mountains in which they breed, on occurrence to the mountains in which they breed, on occurrence to the mountains in which they breed, on occurrence to the mountains in which they breed, on occurrence to the mountains in which they breed, on occurrence to the mountains in which they breed, on occurrence to the mountains in which they breed, on occurrence the mountains of the foundation of the foundatio

The Rufous-bellied Bulbul (Ixos meclellandii) is found along the Himalayas from Naini Tal eastwards, and in the Assam Hills and Burma. It has the general build of a Black Bulbul with a similar crest but is bright olive green above and rufous below. The throat is untilly straked with white.

Habits, etc.—The Black Bulbul is a bird of high forest trees, and except who breeding it is found in parties and large flocks, consisting sometimes of as many as a hundred individuals. These never descend to the ground, and seldom even to the undergrowth, but keep to the tops of the trees and fly from one to the other in foose, irregular order. They are very readless and seldom remain long in one place. Owing to its weak feet this Bulbul does not climb or hop about the boughs, but as compensation it is certainly one of the finest flyes in the family, being both swift and agile on the wing. In consequence this Bulbul is doen mistaken for a Drongo by the inexperienced.

It is a very noisy, bold bird, and the whereabouts of a party is invariably revealed by the noise that they make; their calls are in consequence amongst the familiar bird sounds of the hills. A common note is a long-drawn nasal needs, resembling the distant squard of a pig. There is also a pretty whishe which may be syllabilised as when-whe or whee-whe, something like the musical creaking of a rusty gate-hing; it his is often preceded by a couple of notes queakly-squeakly, very similar to a call of the Drongo. Another less common note is geaplus.

The food consists mostly of berries of various shulls and trees, but insects are also eaten; mulherries and bukain berries are particularly attractive to them. In the evening the birds may often be seen fly-catching from the tops of trees. They are said also to sip nectar from flowers, and certain it is that they may often be seen at the flowers of the rhododendron and other blossom-bearing trees, but it is more probable that they are taking insects from the curse.

During the breeding season, from April to the end of June, the pairs are very affectionate, feeding together, and the male remains in the vicinity while the female is on the nest.

E

The nest is a rather neat cup of coarse-bladed grass, dry leaves and moss, lined with fine grass stems or pine-needles and moss roots and bound exteriorly with spiders' webs. It is placed in a fork of a tree often at a considerable height from the ground.

Three or four eggs comprise the clutch in the Himalayas, and two

The egg is a rather long oval, a good deal pointed towards the small end, fine in texture with little gloss. The ground-colour is a delicate pinkish-white, varying in depth of colour, and it is profusely speckled, spotted, blotched, or clouded with various shades of red. brownish-red, and purple; there is a tendency for a heavy zone or cap of markings at the broad end.

The egg measures about 1.05 by 0.75 inches.

THE RED-VENTED BULBUL

MOLPASTES CAFER (Linnæus) (Plate viii, Fig. 2, opposite page 176)

Description.-Length 8 inches. Sexes alike. The whole head and throat glossy-black; the whole body and closed wings brown, the feathers of the wings, upper back, and breast edged with whitish. giving a scaled appearance, the lower abdomen and upper tail-coverts so pale as to be almost white; tail brown at base, darkening till it is almost black before the white tips of the feathers; a crimson patch under the tail

Iris dark brown; bill and legs black.

Field Identification.-Throughout India. A common garden bird, cheerful and rather noisy in demeanour; earthy-brown in colour with a black, slightly crested head, white-tipped tail, and a bright red

natch under the base of the latter.

Distribution.—The Common or Red-vented Bulbul is a very widely-spread species, occurring throughout the Indian Empire and extending to the east as far as China. With such a large and varied range it is inevitably divided up into several races which with their intermediate forms and areas are somewhat difficult to define; but the main difficulties occur in the forms that are found east of Assam. In the area covered by this work the division of the races is easily understood so long as it is recognised that the boundaries of the races about to be mentioned are not clearly defined, and in the intermediate areas between them birds will be found which cannot be clearly referred to one or other form.

Along the Himalayas together with the plains country about their base, we have an Eastern and a Western form meeting somewhere about Kumaon and Eastern Nepal. The Western bird is M. c. intermedius, found through Kashmir and the extreme North-west from Kohat down to about the Salt Range and along the Himalayas to Kumaon; its range steadily narrows as it progresses eastwards taking in less and less plains country. It is found commonly up to about 4000 feet and in smaller numbers a little higher to 5500

The East Himalayan bird from Nepal to Assam is M. c. bengalensis, and this, while not occurring so high in the hills, not above 4500 feet, has a wider distribution in the plains through the Eastern United Provinces, Northern Bihar, Eastern Bengal, up to North-west Cachar M. c. pallidus extends on the west down to Ahmednagar and Khandesh, and Ceylon are occupied by M. c. cafer, which, while occurring normally up to about 2000 feet, follows the progress of man higher into the hills,

These races are distinguished by the amount of black in the plumage

and also in some cases by size. A strictly resident species. Habits, etc.-The Red-vented Bulbul is, in its various local forms,

one of the best-known birds of India, as it is very common and very attached to the haunts of man, being essentially a garden bird. It is, however, found in all types of country, though by preference it eschews both heavy forest and barren plains. It is arboreal, the short weak legs not being adapted to progression on the ground though the bird sometimes descends to it to pick up food. The

jade: while there are few Europeans who do not recollect Eha's

Occasionally small parties of this Bulbul are met with, and numbers often collect together at a spot where some particular food is plentiful; but normally the bird cannot be described as gregarious. At times, generally in the evenings, Bulbuls indulge in "fly-catching," sitting on the top of a bush or small tree, launching out continuously for short flights in the air, and returning again and again to the same perch.

But our friend has two vices. He is very quarrelsome and a

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plucky fighter, and this is part of the secret of his attraction as a pet for his Indian owners; for one of the essential ingredients of a pet in the East is that the foliated be a whicle for gambling, and the owner of a good-fighting label may poster may a small bet. Our friend and applied may a promising row of peas; though the unsengood that he does in the way of keeping down insect pests probably outweight shit mere obvious damage.

There is something extremely cheerful and attractive about the voice of this Bubul, though be has only one or two call-notes and two call-notes and the control of the control of the control of the no song. Yet for all time he will be credited with the reputation of a famous songert owing to the association in Persian literature between the song of the Bubul, and the scent of roses, and the amorous delights of Persian graders. The Bubull of Persian literature, is, however, as a matter of fact, another bird, a race of the Nightingale (Dankin behinded artisions).

(Danitas phiometa apricana).

The breeding season lasts, according to locality, from February to August, but most nests will be found in May and June. Two broods are probably reared.

The nest is a neat cup composed of dry grass stems and the finest tipe and shoots of tamarisk, lined with fine roots and horse-hairs, and intermingled with dry leaves and scraps of lichen. It is placed usually in a bush or shrub between 4 and 10 feet above the ground, but is often found in a variety of unusual situations.

Two to four eggs are laid.

The egg is a rather long oval slightly compressed towards the smaller end; the texture is smooth and fragile and there is very little gloss. The ground-colour is pinkish- or reddish-white, marked with red, brownish-red, and purphis-red, with secondary markings of pale inky-purple. The markings take every conceivable form of spot, speck, blotch, and strack, and are usually so thick as practically to conceal the paler ground, but in many eggs they collect into zones and care about the broad read.

The average measurement is about 0.90 by 0.65 inches.

THE WHITE-CHEEKED BULBUL

MOLPASTES LEUCOGENYS (Gray)

Description.—Length 8 inches. Sexes alike. Forehead and a long crest, curved forwards, hair brown narrowly edged with white; a patch round the eye to the beak, chin, and throat, and portions of the side of the national conspicuous white patch on the ear-coverts; the whole body and winge olive-brown, darker and greener

above and paler below, becoming whitish on the lower abdomen; tail brown on the basal half, blackish on the terminal half, all feathers except the central pair broadly tipped with white; a bright sulphuryellow patch below the base of the tail.

Iris brown; bill and legs black.

Field Identification.—A sprightly, cheerful bird found in gardens and open country; appears dull brown with a conspicuous crest, black markings about the head, and a large white patch on the face and a patch of yellow under the tail. In the typical race the crest is long and curved forwards

over the beak like Punch's cap. Usually in pairs,

checked Bulbul extends throughout the Himalyss from Afghanistan to the hills of Assam, north of the Brahmaputra River, and in orth-west of the Peninsula down as far as Central India; out of India it extends west to Mesopotamia. There are three races of the bird in India. The typical form with the highly-developed "Punch cap" cress is confined to the



Fig. 11—Head of White-cheeked Bulbul (1) nat. size)

from the foot-bills at about 2000 up to 6000 feet in the cast and from 3000 to 9000 feet in the west. Through the plains of the Punjab south of the Salt Range, Sind, Cutch, Gurerat, Rajjuttana, the North-western Provinces south to Eiswah, and Central India as far east as Jinani, Saugor, and Hoshungabad, the typical race is replaced by M. I. Inaustii in which the creet is short and black, the under tail-coverts suffron-yellow, and the olive-brown of the upper parts is without the greenish tinge found in M. I. Inauszii, is found connecting these two races in the Salt Range and the elevated plateau enorth of it about Rawal Pindi and Campbellpur, and west of this to Bannu and Koht. This is a truly intermediate form, the crest in colour and size and the bill in shape being intermediate between those of M. I. Inauszii.

Habits, etc.—Throughout its range and under its different names the White-checked Bulbul has the same characteristics; it is a bird of open country not of forest, a dweller amongst bushes rather than a bird of the trees, a familiar and cheerful companion by the paths of man. In the Himalayas it is one of the conspicuous birds of the hill stations, coming freely into gardens and disporting itself on the open spaces that fringe the roads; it is common round the hill villages with their cultivation. But in Kashimi it sociability reaches its apex; there it comes freely into verandals and rooms, and hops about in the house-boats with its cheery note and quainty-cocked crest, suspecting no harm and receiving none; and many a picnic party on the shores of the Dal Lake in the historic gardens of Shalimra and Nishat Bagh have found their number added to by a pair of Bulbuls who have hopped about their table-cloth and gratefully swallowed the crumbs of cicke thowas to them.

While not in any true sense a migrant, this Bulbul is subject to a certain amount of local movement. In the hills, while the majority are strictly stationary, a small proportion move down a little from their breeding zone in the winter; and in the plains leaded it is known to shift its quarters according to season, though

usually not to any great distance.

These Bulbuls are generally met with in pairs or small parties of five or ist individuals, but occasionally numbers are attracted together into a small area by the abundance of some special food-supply. They are very lively birds, incessandly bowing and posturing on the summit of a bauh or flying from tree to tree; and as they do so they keep on uttering their cheery call *Quiche a drink with you*, which is a pleasant and welcome sound in a land where mediodius bird-voices are scarce, and a sentiment that aptly fits the jovial roysterer that utters it. For the Bulbul is a jovial soul and companionable, ready for the fun of the day, whether it be a plentiful hatch of flying-ants to chase and devenu, or a bapless sun-dazed out to bulky and torment.

It feeds chiefly on insects and fruits. It is often seen on the ground collecting ants, gurbs, beetles, and the like, and in the evenings it has a habit of flying into the air like a clumsy Flycatcher in pursuit of insects. Of fruits it devours many kinds; in the hills the Berberis, in the plains the Ber and the Boquain, furnish it with a plentiful supply of berries; and a row of green peas frequently suffers badly supply of berries;

from its attentions.

Attention must be drawn to the fact that these Yellow-vented Bubbus hybridise frequently in a wild state with the Red-vented Bubbus hybridise frequently in a wild state with the Red-vented Bubbus hybridise were collected by the late Major Whitehead at Kohat; and other cases have been observed at Rawal Pindi. Hano; and Kagradi.

The breeding season commences both in the hills and plains towards the end of March and continues until August, though few nests will be found after June. Apparently two or more broods are reared in the vear.

The nest is a well-constructed cup, light and fragile in appearance

but strong; it is composed of fine dry stems of herbaceous plants, generally rather rough in texture, mixed with grows the star and shreds of vegetable fibres; there is a neat lining or one fine material, dry grass stems or grass roots for preference, since thick bush at a height of 4 to 6 feet from the ground, but it is occasionally built in trees at a greater height than this.

The eggs are somewhat variable in shape, size, and colour. The eggs are the result of the state of the ground-colour is pinkish or reddish white with little or no gloss, thickly speckled, freekled, streaked, or blotched with red of various shades, with,

in addition, tiny spots and clouds of underlying pale inky-purple.

They average about 0.88 by 0.65 inches in size, the eggs of M. L.

leucotis being slightly smaller than those of M. I. leucogenys.

THE RED-WHISKERED BULBUL

OTOCOMPSA JOCOSA (Linnæus) (Plate xii, Fig. 3, opposite page 288)

Description.—Length 8 inches. Sexes alike. A conspicuous white patch on the sides of the face, above which is a small crimson tuft springing from the lower cyclid; crest, top, and sides of the head and a narrow line below the white patch black, merging into a broad blackish-brown gonget, which is interrupted in the centre by the white of the breast; remainder of upper plumage brown, darker on the wings and tail, the latter tipped with white except on the central pair of feathers; lower plumage white, washed with brown on the

Iris brown ; bill and legs black.

Field Identification.—A sprightly and common garden bird; appears dark brown above, white below, with a white patch on the checks, and a broken gorget across the breast; a crimson tuft below.

e eye, and a similar patch of colour below the tail.

Distribution.—The Red-whiskered Bublul is another of those common species which have a wide distribution from India to China. Within our area there are five necs. Three have white tips to the tail-feathers. These are the typical race, large and dark, which extends from outside India into the Duars and Sikkin foot-talks: O, j. protrication, a paler form found in the United Network of the Company of the Compan

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Cape Comorin and Salem district, and also into the Central Provinces. This Bulbul breeds up to an elevation of 7000 feet; but on the whole the northern race is more of a plains bird, while the southern prefers the hills. Both, however, are strictly resident.

Habit, et.—The Red-whisherd Bulbuls have very much the same habits as the Red-verted Bulbuls, avoiding birk forest and preferring the hums of men, gardens, orchards, cultivation, low preferring the hums of men, gardens, orchards, cultivation, low the properties of the preferring the p

Their diet is both insectivorous and vegetarian; they are particularly fond of fruit, attacking the larger kinds while immature, and the smaller when ripe, and as numbers often collect to the feast

The breeding season is from February to May. The nest is cupshaped, loosely but strongly built of grass betties, roots, fibres, roots, fibres, and thin stalks, and is lined with finer grass stems and roots; a certain amount of dy leaves and ferns are worked into the bottom and are characteristic of the nests of this species. They are placed in bushes at heights below 6 feet from the ground.

Three or four eggs are usually laid in the north and two or three

The egg is a broad, somewhat lengthened oval, fine in texture with a slight gloss. The ground-colour is pinkish- or reddish-white, very thickly freckled, mottled, streaked, and blotched with red of various shades, and a few secondary markings of pale inky-purple; there is a tendency for the markings to collect at the broad end.

The eggs measure about 0.85 by 0.65 inches.

they are responsible for a good deal of damage.

THE YELLOW-BROWED BULBUL

IOLE ICTERICA (Strickland)

(Frontispiece, Fig. 3)

Description.—Length 8 inches. Sexes alike. The whole upper plumage bright yellowish-olive; wings dark brown, the outer webs olive-yellow, the inner edged with yellow; tail yellowish-olive, the shafts below and the inner edges of the feathers yellow; a line through and round the eye, the sides of the head and the whole lower plumage bright sellow, the flanks washed with olive.



 White-throated Laughing-Thrush. 2. Deccan Scimitar-Babbler. 3. Jerdon's Chlomosis. 4. Black-headed Sibia. (All about de nat. size.)

Iris brownish-red or blood-red; bill horny-black; legs and feet pale blue or slate-blue.

Field Identification.—A very sprightly Bulbul, bright olive above and bright yellow below with a yellow line over the eye. Found in melodious parties in the forests of the Western Ghats.

Distribution.—The Western Ghats from Khandala to Travancore, extending inland to the Nilgiris and Palnis at all heights from the foot of the hills to 6500 feet; most numerous about 3500 feet. Also found in Ceylon.

Another yellowish bird is the White-throated Bulbul (Criniger gularis) which is found at low elevations in the Eastern Himalayas and Assam. The upper plumage is yellowish-olive and the lower parts bright yellow with a white throat. It is a noisy, gregarious bird forced in hursif forcet with thick undergrowth.

Habits, etc.—The Yellow-browel Bulbul is one of the commonest forest birds of the Western Ghats where its normal habitat is the heavy evergreen forest which covers so many of the alopes of the hills. Here it keeps much to the undergrowth though it is often found about the edges of the forest and occasionally sentrais into neighboraing gardens; the shade and solitude of the forest are, however, its proper home.

This species will be observed both in pairs and in noisy parties of five or seven birds which often join on the microble hunting parties. It is very reatless in character, hopping actively about the boughs of the trees and then descending to the saping undergrowth and then again flying on to some burse bought to give out its quite little wardle. The low-toned varying notes are difficult to describe, but the adjectives sweet and soft aim of the will at once occur to the hearer. Some of them resemble he sounds dyr 69, see belief up the second of the continuously repeated for no small space of time. An alarm-note is somewhat harsh and jarring. In India this Bulbul is said to be largely frugivorous, feeding not only on the forest herries and freits but on the more valuable domesticated guarus, loquats, pears, pearles and the like. In Ceylon,

at any rate, it is also to some extent some feetures to May. The nest is trustally built at a height of 6 to 10 feet for ground in a small saping or everyeren shruh for 6 to 10 feet for forest where the light is very poor. Occasional on a rule particularly well conceaded. It is very distinctive in a rule particularly well conceaded. It is very distinctive in a rule particularly well conceaded. It is very distinctive in a forest point particularly well conceaded. It is very distinctive in a forest point particularly well conceaded. It is very distinctive in a forest point particularly well conceaded. It is very distinctive in a forest point particularly well conceaded almost entirely of with black rootes or fine grasses and bents, bound with cobwells and lined with black rootes or fine grass and slung as a rule between two trives in a horizontal fork. The construction is firm and compare though some are so thin that the egge can he seen through the bottom.

The usual clutch consists of two eggs though three are sometimes found. The egg is a moderately long and rather prefect onal, almost decivid of gloss. The ground-colour is dull white or pinkish-white and sometimes even warm salmon-pink, speckled more or less thickly, and often heavily, with pale reddish-brown or pink; these markings are usually more numerous at the broad end and occasionally form

The eggs average about 0.9 by 0.65 inches.

THE WHITE-BROWED BULBUL

Pycnonorus Luteolus (Lesson)

Description.—Length 7 inches. Sexes alike. Upper plumage dail brownish olive-green, palest on the head where it is slightly assly and brightest on the wines; rump yellowish; two dail whinst streaks from the beak over and under the eye; chin pale clear yellow; lower parts pale ashy-swhish tinged with yellow, brightest towards the tail, the breast faintly streaked with brownish-grey.

ris red : bill black : legs dark plumbeous.

Field Identification.—An inconspicuous but noisy bird, olivecoloured above and paler below, with a white eyebrow, which skulks

in cactus and bushes in gardens and scrub-jungle.

Distribution.—Confined to Ceylon and India south of a line from Baroda on the west to Midnayur on the east. While common in Western Bengal and Orissa, in the Tributary Mahala, along the Eastern Ghats and about Bombay, it is rare or absent on the Deccan tableland and throughout the Central Provinces. A resident species. The Ceylon race, P. L. insule, is smaller and darket.

The Striated Green Bulbul (Alcurus leucogrammicus) is fairly common in the Eastern Himalayas, the hills of Assam and in Burma. It is created, olive-green above with white shaft streaks and yellow below streaked heavily with olive-brown. The pleasant song will be

familiar to many at Darjeeling.

Habits, etc.—This Bulbul avoids actual forest, and prefers scruband bush-jungle in that netherland which is neither forest nor cultivation. It frequents the outskirts of villages, and is a great lover of the thick clumps and hedges of cactus and thomy bushes which are found round every hamlet. In such cover it is a skulker, and from the heart of its retreat it is prone to burst into a loud clear volley of whistling notes which seem to tumble over each other, so quickly are they produced. The sound is a lively, rowdy chatter with no attempt at harmony—just a burst of not unpleasing notes, ending in a frightened whistle. In Bombay and Madras it is a common garden bird. It is a plains species, and though found in the lower hills does not ascend those of any elevation. The food consists of various fruits and berries.

This bird may be found breeding according to locality in almost every month of the year, but about Bombay the main breeding season is from April to July. Apparently two broods of erenteed. The nest is a loose, rather units, and straggling op of erenteed. The with fine grass stems, coir, or bair. It is built in cick bushes at no ereat height from the ground, enemals from one

The clutch consists of two or three eggs. They are decidedly elongated ovals, fine and smooth in texture, and moderately glossy. The ground-colour is reddish-white, thickly speckled and blotched with reddish-brown, these markings mixed with clouds and spots of pale grevish-like. In some specimens these markings coalesce of pale grevish-like.

no a zone round the broad end.

THE HIMALAYAN TREE-CREEPER

(Plate ii, Fig. 6, opposite page 24)

Description—Length 6 inches. Sexes alike. Upper plumage a streaked mixture of blackish-hrown and fulvous, the feathers at the base of the tail strongly tinged with ferruginous; a short streak above the eye fulvours; wing adak brown with a board fulvous band running through all the flight-feathers except the four outermost; tail brown, regularly cross-barred with black; chin and upper throat pure white; remainder of lower plumage pale smoky-brown. Iris dark brown; bill black, lower mandible fleshy-white; less

fleshy.

The bill is long, slender, and curved; the toes and claws are very long; the tail is graduated and composed of stiff, pointed feathers.

Field Identification.—A very small bird, mottled brown above

Field Identification.—A very small bird, motited brown above and whitish below, with a long, curved beak and stiff tail, invariably found climbing up the bark of tree-trunks. This species is distinguished from all other Indian Tree-Creepers by the black

Distribution.—The Himalayan Tree-Creeper is generally distributed in the mountain ranges that encircle North-owestern India. The typical form is found in the Central Himalayas about Sinkla, Garhwal, and Kumano. It is commonly said to occur farther east to Sikkim and Bhutan, but this requires verification. In Turkestant there is a very grey race with a long bill which is known

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as C. h. tæniura. Between the areas occupied by these two forms, in Kashmir and the North-western Himalayas and the ranges running down south along the North-west Frontier Province in Afghanistan and Baluchistan, the Tree-Creepers are intermediate in character between the above two races and have been given the name of C. h. limes. The best known species in the Eastern Himalayas is the Sikkim

Tree-Creeper (Certhia discolor) a more richly coloured species with

the lower plumage earthy-brown.

Habits, etc.-During the breeding season the Himalayan Tree-Creeper is found throughout the mountain forests between 5000 and 10,000 feet. It is perhaps most numerous in the areas of the big spruce firs, but is sufficiently common wherever it is found. It is an early breeder and very hardy in spite of its delicate-looking sound in the snow-bound forests of the northern slopes at a time when they are half empty of bird-life. During the winter months from November to March large numbers drift downhill and wander into the plains at the foot of the ranges, occurring at that season as far afield as Ihang, Lahore, and Saharanpur.

The Tree-Creeper cannot fail to be identified by the veriest beginner in the study of small birds. It is as much a parasite on the tree-trunks as the vegetable creepers that cover many of them, Except for an occasional scramble on a rock or the face of a steep bank the Tree-Creeper spends its entire life in a monotony of climbing, rather like a jerky brown mouse, from the bottom of a treetrunk up to the thicker portions of the boughs, and then sweeping down through the air with a cicada-like flight to the base of a neighbouring tree where it repeats the performance. It invariably climbs upwards, neither jerking backwards and downwards like a Woodpecker may on occasion, nor running in all directions and positions like a Nuthatch, though from its habit of rather preferring the underside of a bough it is frequently moving with its back parallel to the ground. It never perches on a twig, though it sometimes climbs along the thicker ones in continuation of its progress along a bough, and it is never still longer than the interval necessary to dislodge some tightly ensconced insect. For its food is obtained entirely from the bark of the trees that it climbs, picked out from amongst the crevices and holes with the long, curved beak, and the progress of the little bird is often interrupted by a parabola of flight after a small moth which has escaped it for the moment by taking wing from its diurnal resting-place. The Creeper, while living solitary or in pairs as regards its own kind, is very social with other species, and one or two are invariably found with the mixed hunting parties of Tits and Warblers, working the trunks while they hunt the leaves and twigs, so that tree after tree undergoes a thorough scrutiny.

The ordinary call of the Tree-Creeper is a long-drawn squeak. meaningless in tone and ventriloquial in character, which comes from nowhere in particular amongst the trees, so that the bird is difficult to locate. The song is loud, but brief and monotonous, quis-quis-quis-quis uttered now and again in the depth of the forest. and chiefly remarkable as holding the field alone before most species in the hills have started their breeding song.

The breeding season is from March to early May.

The nest is a cup composed of fine grasses, dry leaves, moss, chips, and miscellaneous debris with a lining of feathers and fur; it is placed in a hole or crevice in a tree-trunk, and very frequently behind a loose bulging section of bark.

Four to six eggs are laid; they are regular broad ovals, fine in texture without gloss. The ground-colour is white, profusely spotted with various shades of red and brown, the markings tending in many eggs to collect in a zone about the broad end.

THE WALL-CREEPER

Description.-Length 7 inches. Sexes alike. Summer plumage: the whole of the body plumage ashy-grey, except the chin and throat which are black; a large crimson patch on the wings, including the coverts and edges of the flight-feathers; flight-feathers black, the four outer feathers each with two conspicuous white spots; tail black tipped with ashy which gradually changes to white and increases in extent towards the outer feathers.

the head is brownish.

The hill is long and slender, the wings rounded and the hind claws very large.

Field Identification.-Can be confused with no other species: a french-grey bird with a long slender bill and crimson patches and white spots in the wings, which spends its life climbing on banks,

Distribution.-The Wall-Creeper is found in the mountain ranges of Central and Southern Europe, and eastwards to Mongolia, Turkestan, and the Himalayas. Breeding under very similar Alpine conditions in these widely-distant areas it has not been influenced

In the Himalayas it breeds at great elevations between 12,000 and 16,000 feet, and also apparently in the neighbouring ranges between the North-west Frontier Province and Afghanistan. In winter it descends to the outer ranges and the foot-hills, individuals wandering well out into the plains.



The stumpy little dark brown Wren (Troglodytes troglodytes) with its cocked-up tail is found in the Sufed Koh, Kashmir and the Himalayas generally in the high forest zone, descending lower in winter. The habits are the same as those of the British bird.

Habits, etc.—This beautiful bird can scarcely escape notice where it occurs. In the Alpine fastnesses, where it breeds, it spends its life on the faces of stupendous precipices, but in winter when it comes lower down to the milder haunts of men it may be found wherever small cliffs, steep-cut banks, walls, rocks, or boulders provide the vertical surfaces on which it lives. For as the Tree-Creeper is to the tree, so is the Wall-Creeper to the stone, and it is equally rare for the one bird to invade the haunt of the other. The Wall-Creeper progresses up the vertical face of stone in a curious ierky fashion with a continual downward flick of the outermost wing-feathers; occasionally it flutters out into the air and endeavours the curious butterfly effect of this action has given the name of "Butterfly-bird" in many languages from Switzerland to Tibet. Unlike the Tree-Creeper, the Wall-Creeper has perforce to undertake long flights in the air as it passes from cliff to cliff. Then it is curiously reminiscent of a Hoopoe, the same hovering, uncertain flight as if the bird was wondering where to go, the same rounded spotted wings, the same general build, the long curved beak too, a curious case of parallelism still unexplained.

In its occasional wanderings into the plains it is often hard put to find the conditions necessary to its life and is in consequence sometimes found in curious places. Every winter one or two live

with wool, fur, hair, and feathers, placed in some crevice in the face

The clutch consists of four to six eggs; they are broad ovals, rather dull white sparsely freckled with deep reddish-brown, chiefly

(Plate vii, Fig. 5, opposite page 144)

Description.-Length 8 inches. Sexes alike. Entire plumage dull Iris dark brown; bill black; legs pale brown, soles vellow.

The young bird is paler and greyer with the plumage squamated. Field Identification.-A sombre dark-brown bird, squat in shape, with a short tail and sharp beak like a large Wren, found on running open water in the Himalayas; flies very swiftly low over the water

with a shrill call.

Distribution.—This sombre species of Dipper is found throughout the greater part of Northern Asia from Siberia and Manchuria to the Himslays and Japan; it is divided into several races, of which we are only concerned with one (C. p. tenuirotti). This is found in Afghanistan and Turkstan, and throughout the Himslaysa to Eastern Assan north of the Brahmagutar. It is a resident species breeding mainly from the foot-hills up to about 6000 feet, but it occurs also at all heights up to 12,000 feet.

A race of the Common Dipper (Cinclus cinclus) of Europe is found at high elevations of the Inner Himalayas, being best known from Kashmir to Gurhwal. It is easily recognised by the pure white throat

and breast.

Habits, str.—The Brown Dipper is entirely aquatic in its habits, and is found commonly on all the open perminal streams and rivers of the Himahayas, both amongst the wooded ranges of their southern slopes and amid the arid, stony mountains of their central and inner ranges. It obtains from the water all its food, consisting mainly of aquatic insects and their larvae, and these it captures by wading, awimming, and diving, having also the faculty of walking about on the bed of the stream under water. For these methods it is admirably adapted in structure. It is short, rotund, and stoutly built, the plannage is everywhere very dense and incapable stouth of the stream of the structure. It is short, rotund, and stoutly built, the plannage is everywhere very dense and incapable faculty of the structure. It is also the structure of the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure. It is also the structure of the structure of the structure. It is also the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structure of the structure. It is also the structure of the structure of the structu

It is a most active bird, never still and always busy. The harble call debtil-debtil is a familiar sound along hill streams, shrill enough to be heard easily above the roar of the waters; it heralds the approach of the small plamp brown bird that flies swiftly along a foot or two above the surface of the water, savaying from side to side amongst the boulders and only making a detour over land to avoid some intruder at the water's edge; it we wings appear rather small for the stout body, and to make up for this they are vibrated very quickly in light in sustained beats followed by a pause.

Settling on a stone the bird bows and jerks from side to side, or immediately starts feeding, keeping its foothold easily on slippery stones and disappearing under water cither diving or walking. It swims freely on the broader pools, looking like a miniature Water-hen,

now and again diving and disappearing for a while.

The breeding season is from December to May.

The nest is a large globular structure of moss and grass, stoutly constructed with massive walls, and the entrance placed at one side

is comparatively large. The egg-chamber is lined with moss, roots and leaves.

The situation chosen is always close to or above the water, and the nests are wedged into hollows and clefts of rocks and boulders overgrown with mosses and ferns and damp with moisture.

The clutch consists of four or five eggs. In shape they are rather elongated ovals, very soft and satiny in texture, and almost without gloss. The colour is pure white, and the average size is about 1:00 by 0:72 inches.

THE INDIAN BLUE-CHAT

Luscinia brunnea (Hodgson)

Description.—Length 5 inches. Male: The whole upper plumage, including the exposed parts of the view and rail, dall blue, the hidden parts of the wing- and tail-quills brownish-black; a conspicuous white line over the eye; the sides of the face and neck black; throat, breast and sides of the body bright chestnut, paler on the chin; thicks ashly-ergy; remainder of lower plumage white.

Female: The whole upper plumage and the exposed parts of the wings and tail olive-brown, tinged with russet on the sides of the wings and above the tail; sides of the face russet flecked with paler; middle of chin and throat, the abdomen and a patch under the tail white; remainder of lower plumage warm fulvous-brown or olive-brown.

Iris dark brown; bill black in male, dark horny-brown in female;

Field Identification.—A spry-looking bird found on near the ground in thick undergrowth of in forest in the Himalay or a summer and in South India in winter. Male looks very dark blue above and the think blue with a conspicuous white line over the very female an inconspicuous olive-brown bird, more fulvous and white below. He as observed; it is not.

Dittribution.—The typical race of the Illus-Chat breeds in a zone between 6500 and 11,000 feet in the Sufet Koh, through Kashniir proper and in the Illus pays to Illustra; also in the Lichiang Range of North Yuunand 500 feet from the Wynaud to South-west India of the Chat and from the Wynaud to South-Warnand 500 feet from the Wynaud to South-Warnand south the central hills of Ceylon. On passage from August to Ceober and from March to mid May it may be found here and there throughout the Peninaula score west was of all in from Delbi to Agra and Baroda. A slightly smaller race L. b. wickhami breeds in Burma and is apparently resident.

Habits, etc.-During the breeding season the Indian Blue-Chat is a common bird in the forests of the Western Himalayas, being particularly numerous about the hill stations of Murree and the Galis, in the ranges of Kashmir proper and at suitable elevations about Dalhousie, Dharamsala, Simla and in the Gahrwal ranges. In these forests it affects patches of undergrowth and scrub and the sheltered sides of nullahs. By the ordinary passer-by it is seldom seen, being a skulker of secretive habits; but its commonness is vouched for by the rich though quite short song, and a good way to observe the singer is to creep quietly into the centre of a patch of cover and sit there till his alarm has been forgotten. The male may then be seen at quite close quarters as he hops warbling and whistling through the cover, or sings from a perch in the undergrowth or on the lower

The song consists of three or four rather monotonous notesjerri-jerri or phwee-phwee-phwee-in an ascending scale, followed of an English Robin's song. Once learnt it cannot be mistaken. The alarm-note is a harsh tack-tack like that of the Stonechat and in the close neighbourhood of the nest a faint, anxious squeak is uttered. A very characteristic habit is the fanning of the tail and the jerking of it slowly downwards from the level of the back, every fifth or sixth movement bringing it up again.

In its winter quarters the Blue-Chat is still a bird of shady thickets, marshy spots and banks of streams and it may also be found under coffee bushes and cardamum plants. Here it is usually found singly, flitting about the undergrowth, alighting on the ground and hopping along easily and swiftly in search of the insects that make up its food, The alarm-note and the faint squeak may be heard, but the song is not uttered in the winter quarters.

The breeding season lasts from the end of May till the end of July. The nest is a cup of lichens and dead or skeleton leaves, lined with a little wool, pine-needles, hair or a few feathers. It is built on the ground, either in a hollow on a steep bank or between the roots and buttresses of trees, particularly large firs.

The clutch consists normally of four eggs. In shape they are true ovals, fine and close and silky in texture but without gloss. The colour is a uniform pale blue, unmarked.

They measure about o 80 by o 60 inches.

This species is a favourite foster parent for the Common Cuckoo (Cuculus canorus).

THE PIED BUSH-CHAT

Description.-Length 5 inches. Male: Deep black all over, with the exception of a large patch at the base of the tail, the lower abdomen. and a conspicuous wing-patch, which are white. In fresh autumn plumage the feathers are sometimes margined with rusty-brown.

Female: Upper plumage greyish-brown, with a rufous patch at the base of the tail; wings and tail dark brown, the feathers with

grey, gradually darkening on the breast and becoming more fulyous towards the tail. In fresh autumn plumage the Iris dark brown; bill and legs black.

plains and lower hills in every type of open country; the male is a conspicuous little black and white bird, the female dark brown with a rusty patch at the base of the tail. They perch on the tops of grasses and bushes and at intervals fly

istan, Persia, India, Burma, the Philipthough their detailed distribution is not



considerable numbers from the plains up to 5000 feet and locally Outer Himalayas and the neighbouring plains. It is here largely a summer visitor, arriving in February and March and leaving in September and October. In winter it appears as far south as Hyderabad State. P. c. caprata, with the abdomen black, is found from Vizagapatam to Salem and across Mysore to Malabar as well as in Burma and farther afield. It grades through S. c. nilgiriensis (Nilgiris, Palnis and Travancore ranges) to the huge billed S. c. atrata which is confined to the higher ranges of central hill zone of Ceylon.

Habits, etc .- This Bush-Chat is one of the most familiar birds of

the plains of India, the pied plumage of the male and its habit of perching on the tops of bushes and clumps of grass attracting the attention of all who are observant of wild creatures. It avoids heavy forest but is common about cultivation, in grasslands and in serub-jungle, and is particularly partial to the riverain areas of Northern India where cultivation and tracts of tunarisk serub and grass afternate.

It takes practically all its food from the ground, flying down to from some favourite vantage point which commands a view of bare ground in the vicinity, and to which it returns after the capture of each morsel with the self-satisfied spread and jerk of the tail that common to most of the family. On occasion it launches out into

the air and captures flying insects on the wing.

In the breeding season, as a display, the male drops and quivers the wings and raises the scapulars to show the white wing-patches; there is also a very pretty love flight in which he flies up singing from the top spray of a bush with tail outspread and wings slowly beating the air above the head, and descends again to settle on another bash. In this flight, also, prominence is laid on the displaying of the wing-patches.

The ordinary note is the harsh chipping sound of two stones knocked together, common to the Chats and from which they derive their name. The sone is short but very sweet and pleasing.

The food seems to consist entirely of insects.

The breeding season extends from March until August, but the majority of nests will be found from April to June.

The nest is a cup of small grass roots, bents, and the like, lined with hair, fur, and wool. It is placed in hollows in the ground, either on the level under tufts of grass and herbage or in the face of banks; occasionally holes in buildings and rocks are utilised, but the bird is normally a ground builder and the nests are always well concelled.

The clutch varies from three to five eggs,

The eggs are short, broad ovals with a fine texture and a faint gloss. The ground-colour is pale bluish-white or occasionally pale stone or pinkish-white, and the markings, which tend to collect towards the broad end, are freekles, specks, and small blotches of pale reddishhown.

They measure about 0.67 by 0.55 inches.

THE STONECHAT

SAXICOLA TORQUATA (Linnæus) (Plate xii, Fig. 2, opposite page 288)

Description.—Length 5 inches. Male: Upper plumage including the wings and tail brownish-black, with a comprouses white patch of white on the wings and at the base of the tuil; the wides of the head and the chin and throat black with a large bordering the sides of the neck; breast orange-moins merging the part of the neck; breast orange-moins merging the part of the pater radious of the under parts. In fresh autumn plumage the feathers are broadly edged with fulvous, which greatly obscures the above scheme of coloration, and changes the whole space to the bird; the edges gradually wear off revealing the true coloration. Fernale: Upper plumage, wings and tail bowen with smaller less.

conspicuous white patches on the wings, and a rufous patch at the base of the tail; line over the eye, the chin and the throat pale fulvous; remainder of the lower plumage pale orange-rufous. In fresh autumn plumage the feathers are slightly edged with fulvous but not sufficiently for abrasion to change the plumage markedly.

Iris dark brown; bill and legs black.

Field Identification.—In open country, in both hills and plains, perching on tips of grass and bushes. Males recognised by black head, white collar, reddish breast, and white shoulder-parch. Female, a small dull brown bird similar to female of Piele Bush-Chaut rather paler in colour with the rusty rump-patch less marked, and with traces of a white shoulder-parch.

Distribution.—The Stonechat is very widely distributed in Europe, Mrica, and Asia, and is divided into a number of nees, of which we are chiefly concerned with the Himalayan breeding form, known as S. torquata indica. This breeds in Western Siberia, Russian Turkstan to the South Urals, and throughout the Himalayas; also in the ranges that extend down the North-western Frontier to Blackistan. In the Himalayas the majority breed between 500s and public and even the net even higher, and straggler to writter, from about Spetember to April, the Stonechat migrates to the plains of India, and may then be found everywhere except in the externe south. A resident race S. I. Isucura, with much white in the tail, breeds in the riversin jungles and swampy areas of the tersia and those and the small wampy areas of the tersia and those and the India-Grangteri plain.

S. t. przewalskii, the dark breeding race of Tibet, and S. t. stejnegeri, the broad-billed race of North-eastern Asia, visit Northern and Eastern

Habits, etc.—The Stonechat is never found in forest country.

F2

During the summer months, whilst breeding in the Himalayas, it is found on the open hill-sides, either amongst the terraced cultivation or on the bare waste slopes where rough grazing alternates with rocky screes. In winter in the plains it is largely a bird of open cultivation, being particularly partial to fields with standing crops of cotton, sugar-cane, or the various cereals. Under all circumstances its characteristics are the same. It invariably perches on some vantage-point, either a large stone or more generally the topmost twig of a bush or plant, and thence makes short flights in all directions on to the ground to capture some insect, either devouring it on the spot, or taking it back for the purpose to its perch. It is very restless and fairly shy, and is incessantly flirting its wings and tail. It does not move about on the ground, but the flight is fast and strong, and once alarmed the bird is difficult to approach. The alarm-notes, hweetchat, hteeet-chat, somewhat resemble the noise made by clinking two stones together, and are responsible for the bird's trivial name; they are uttered at the least provocation, as the bird is rather fussy and suspicious. The song is a short low trill, and is quite pleasant though it is audible but for a short distance.

The breeding season lasts from March to July, but most eggs will be found in April and May. Two broods are reared in a season.

The nest is a cup composed of rather coarse grass and roots, sometimes mixed with moss or day leaves, and line; with fine grass, bair, fur, and occasionally a few feathers. It is built in holes in interest the transcending of the boulders, in banks and under the day of foliage, and is well concealed, so that it is best found by watching the parents with field classes.

The normal clutch consists of four or five eggs.

They are rather broad ovals with little or no gloss. The groundcolour is dull pale green or greenish-white, very finely and faintly freekled with pale brownish-red; the markings are very delicate in character and tend to collect towards the broad end.

They measure about 0.70 by 0.55 inches.

THE DARK-GREY BUSH-CHAT

RHODOPHILA FERREA (Gray)
(Plate ix, Fig. 2, opposite page 208)

Description.—Length 6 inches Male: Upper plumage dark asby-grey mixed with black; wings black edged with grey, and with a white patch on the inner covers; tail black, the feathers increasingly margined with white outwards; a broad white streak above the eye; sides of the head black; entire lower plumage white sullied with ashy along the flanks and on the thighs. In fresh autumn plumage the upper parts have rusty margins to the feathers but these soon wear off.

Female: The whole upper plumage rufous-ashy; tail brown, broadly edged with chestnut matching the upper tail-coverts; wings brown, the feathers narrowly edged with rufous; a pale grey streak above the eye; sides of the head reddish-brown; chin and throat white; remainder of lower plumage pale guilous-ashy.

Iris brown ; bill black ; legs dark brown.

The tail is rather longer and more graduated than in the true Chats of the genus Saxicola. Field Identification.—Common Himalayan form. Male pied black

and white with the under surface white; female rufous-brown, paler below with a chestnut tail; sits conspicuously on bushes and trees on the more open hill-sides; tail comparatively long.

Distribution.—This Bush-Chat breeds throughout the Himalayas from the borders of Afghanistan and Chitral to Eastern Assam at elevations between 4000 and 10,000 feet. While not migratory in the true sense of the word, it moves to a lower zone in the winter months; at that season it is common along the waterways of Assam and Eastern Bengal, but in the west only a few straggle to the plains along the base of the Himalayas.

Habits, etc.—This is a familiar bird in Himalayan hill stations, frequenting all types of country provided that they are moderately open; it is fond of gardens and the immediate neighbourhood of man. It has the family habit of perching in conspicuous positions on the tops of bushes, but differs from the Chats of the genus Saxicola in its fondness for situations at the tops of trees. In such places the male sings his rather pretty but unsatisfactory little song, Titheratu-chak-lew-titatit-always just that length but with a few variations, and with a rising inflection that ends suddenly. It captures insects and caterpillars on the ground, and also sallies into the air to take insects on the wing. While bold and familiar in an ordinary way, it develops a very anxious demeanour during the nesting season, flirting its long tail and making a noise which has been aptly described as "geezing," recalling the winding of a watch. The nearer one approaches to the nest or fledged young the more excited become the birds, so that their very anxiety betrays the spot on the principle of the children's game of "hot and cold."

The breeding season lasts from the beginning of April to the end of July and two broods are reared, occasionally from the same

The nest is the usual cup characteristic of the Chats, a structure of coarse grass, fine twigs, and moss, lined with fine roots and grass stems, horse-hair, and fur. It is placed in a hollow either on some The clutch consists of four or five eggs. In shape they are a

amongst the stones of a rough terrace wall.

broad oval, with a stout and fine texture and little gloss. The groundcolour is variable from bluish-white to bluish-green; the markings consist of faint reddish speckles which may either cover the whole egg so completely that it appears rufous rather than blue, or collect into a zone or cap about the broad end.

The egg measures about 0.72 by 0.57 inches.

This Bush-Chat is commonly victimised by the Cuckoo (Cuculus canorus), and a large proportion of its nests are destroyed by other

THE PIED WHEATEAR

CENANTHE PICATA (Blvth)

Description.-Length 7 inches. Male: Black throughout except a patch on the rump and upper tail-coverts, and the lower plumage from the breast downwards which are pure white; the tail is white except for a broad black band across the end, widening on the central

Female: Upper plumage brown; a white patch on the rump and upper tail-coverts; wings dark brown; tail as in the male but black replaced by brown; chin, throat, and breast dark ochraceous-

brown; remainder of lower plumage pale buffy-whitish.

Iris dark brown; bill and legs black.

Field Identification.- In dry open country sitting on walls, stones, and posts; male black with white rump and under parts, and a white tail banded with black which is conspicuous in flight; female brown with similar tail; flies low and fast over the ground when disturbed.

Distribution. - Breeds in South - east Persia, Baluchistan, Afghanistan, the neighbouring areas of the North-west Frontier Province, and Baltistan. In winter migrates to India where it is abundant in Sind, Rajputana, and portions of the United Provinces, and in smaller numbers in the Punjab. Two very closely allied species, the White-capped Wheatear (Enanthe capistrata) and Strickland's Wheatear (Enanthe opistholeuca) winter in some numbers in North-west India, the latter breeding along the Suliman Hills. They closely resemble the Pied Wheatear, and by some writers have been erroneously considered polymorphisms of that species. The first named has the top of the head and nape greyish-white. Strickland's Wheatear has the lower parts black almost to the vent.

Habits, etc.—This handsome Wheatear is amongst the earliest of

the winter visitors to arrive in India, appearing in Sind about the middle of August; it leaves again in February and March. This, like other Wheatears, avoids forest and damp areas. It prefers open desert, thin scrub-jungle, and the drier stretches of cultivation; and in such places is particularly fond of the neighbourhood of native huts and cattle-folds, attracted no doubt by the insects that gather in their vicinity. It perches comparatively seldom in trees, but sits on low mud walls, well-posts, and similar situations where it watches for food, and thence flies down to the ground to pick up wandering beetles, ants, and other insect life. The flight is strong and fast and always low over the ground, and, perching or hopping,



Fig. 14-Pied Wheatear (4 nat. size)

the carriage of the bird is very spry and upright. Each individual has its own beat with a series of observation-posts, and resents the arrival within it of intruders of the same species, chasing them away: it is however rather a shy bird, as regards man. During the midday heat it rests quietly in some shady spot, and at night it roosts in the roofs of buildings by preference. The male has a very sweet, low warbling song, which is sometimes uttered in winter. In this species, as in the allied species mentioned, there is a marked preponderance of males in India in winter, somewhat in the proportion of twenty to one female, and no explanation of the fact is

In Baluchistan and the Kurram it breeds from late April to June at heights from 5000 to 8000 feet and even higher. The nest is a large structure of roots, bents, and feathers, the cup being lined with wool and hair. It is placed deep in a hole in a bank, rock, or wall. The clutch consists of four or five eggs.

The egg is a blunt, broad oval, fine and close in texture, with a fair gloss. The ground-colour varies from white to pale skim-milkblue, sparsely marked with tiny freekles and a few small blotches of reddish-brown, the markings tending to gather in a zone round the

The egg measures about o.8 by o.6 inches.

THE DESERT WHEATEAR

(Enanthe Deserti (Temminck)

(Plate xii, Fig. 4, opposite page 288)

Description.-Length 6 inches. Male: Upper plumage rich buff turning to a white patch at the base of the tail: wings black. the feathers margined with white or buff, and with a patch on the inner coverts white; tail black, the basal half of the feathers white; a pale buff streak over the eyes; sides of the head and neck, chin, and throat black, the feathers edged with buff; remainder of lower plumage buff, brightest on the breast.

Female: Resembles the male, but is duller and the black is replaced by brown.

Iris dark brown; bill and legs black.

Field Identification .- A typical Wheatear perching on the ground or on low bushes in arid open country; sandy in colour with dark wings, and black throat-patch in male; a white patch in the base of the tail; flies low and fast over the ground when disturbed.

Distribution.-The Desert Wheatear has a wide distribution as a breeding species in Northern Africa, Palestine, Arabia, and Southwestern Asia to Tibet. It is divided into several races, of which we are only concerned with two. E. d. atrogularis breeds in Western Central Asia, the Kirghiz Steppe, the South Caucasus to Eastern Persia and Afghanistan. In winter it migrates to the plains of Northwestern India, becoming very common in the North-west Frontier Province, the Punjab and Sind, and reaching the latitude of Bombay to the south and Nagpur in the east. Œ. d. oreophila, slightly larger with more white in the wing-quills breeds in Baltistan, Ladakh and Lahul but winters south-west of our limits. This species must not be confused with the Isabelline Wheatear (Œnanthe isabellina), also a winter visitor to North-western India, in which both sexes closely resemble the female of the Desert Wheatear but have the black bar on the end of the tail narrower

The Red-tailed Wheatear (Enanthe xathoprymna), common about broken land in North-western India, has the tail chestnut with a black terminal band that is much as in the Blue-throat, but its habits which are like those of the Desert Wheatear distinguish it from the skulking Bluethroat.

Habits, etc.-This is a true denizen of the desert, being generally distributed and common in the wide arid plains of North-western India, where it prefers the more barren and sandy wastes, though it comes also into cultivation where this is interspersed with barren patches. It is particularly fond of broken ground, either sandy or rocky, and of old cultivation which has reverted to desert. It spends most of its time on the ground, perching on stones and little eminences or on the wild caper bushes and uck plants that are common in the localities it inhabits; from such spots it hops or flies to the ground to capture beetles and other insects, occasionally darting up into the air to take insects on the wing. It arrives in India later than most of the Wheatears, about the middle of October, and leaves again in February and early March. It flies well but keeps low above the ground and practically never perches on trees.

This species, in the race E. d. oreophila, just nests in Indian territory in farther Kashmir and Lahul on the barren hillsides and sandy plains at elevations of 10,000 to 12,000 feet.

The nest is placed in burrows, under bushes, and in holes in walls. It is a shapeless mass of grass, fine roots and twigs, wool, hair, and other materials, in which a shallow hollow is lined with

The clutch consists of three to five eggs; these are pale bluishgreen speckled and spotted with rusty-red.

In size they average about o 80 by o 56 inches.

THE BROWN ROCK-CHAT

CERCOMELA FUSCA (Blyth)

Description.-Length 6 inches. Sexes alike. The whole plumage dull rufous-brown, redder on the sides of the head and lower parts; tail very dark brown.

Iris dark brown; bill and legs black.

Field Identification.-Plains species, frequenting ruins, outskirts of towns, old brickyards and low rocky hills; a plain dark-brown bird familiar in demeanour, coming into occupied buildings.

to a patch of country in the centre of the Peninsula, including the Southern and Eastern Punjab, the United Provinces, the extreme Northeast of the Central Provinces, and Rajputana as far east as Cutch.

species found both in arid stony wastes, in deep ravines and earthy

cliffs, on rocky lills, and in and about villages and towns. It is a great frequenter of buildings, fitting in and out of the empty chambers and gaping windows of ancient palaces and forts, perching in the comices of tombs and mosques, and living even in the more frequented houses and offices of the works-aday world, the friend slide of rich and poor. It comes into rooms even when there are people moving and talking within; it is a regular Wheatear in its habits, flying from ground to ord-ridge, from window to cornice, with the strong direct like which it captures on the ground, if projects from the elevated situations where it perches. During the breeding season it becomes rather pugnacious and readily attacks squirrels, rats, lizards, and trids in the neighbourhood of the rats, lizards, and trids in the neighbourhood of the rats, lizards, and trids in the neighbourhood of the rats, lizards, and trids in the neighbourhood of the rats, lizards, and trids in the neighbourhood of the rats, lizards, and trids in the neighbourhood of the rats.

The breeding season lasts from February to August, but most eggs will be found in March and April. Two or three broods are reared

in a year, sometimes in the same nest.

The nest is a shallow, loosely-constructed cup of grass-roots, wood, hair, and similar materials, sometimes separately lined with wood and hair; occasionally it is supported by a little heap of small stones and fragments of clay. It is built in holes in rocks, buildings, and stone walls, and when in buildings may be placed on shelves and rafters without may attempt at concealment.

The normal clutch consists of three eggs, but four or five are

The egg is a moderately broad oval, rather pointed towards the small end; the texture is fine with a good deal of gloss. The ground-colour is a most delicate pale pure blue; the markings consist of tiny specks and spots of reddish-brown, which tend to collect in a zone round the broad end.

The egg measures about 0.82 by 0.62 inches,

THE SPOTTED FORKTAIL

ENICURUS MACULATUS Vigors

Description.—Length 11 inches, including a long, deeply-forked tail of 6 inches. Sexes alike. A patch on the forehead and crown, a large patch on the rump, and the lower plumage from the breast downwards white; remander of body plumage black, with round white spots on the hack; feathers of the lower breast spotted with white; a broad white har across the wing; it in inner flight-feathers marked with white; tail black, the feathers white at the base and broadly tipped with white, and the two outer pains entirely when the breast the spot and the two outer pains entirely when the spot and the two outer pains entirely when the spot and the two outer pains entirely when the spot and the two outer pains entirely when the spot and the two outer pains entirely when the spot and the two outer pains entirely when the spot and the spot outer pains entirely when the spot and the spot outer pains entirely when the spot and the spot outer pains entirely when the spot and the spot outer pains entirely when the spot and the spot outer pains the spot outer pains the spot and the spot outer pains the spot outer pains the spot and the spot outer pains the spot and the spot outer pains the spot outer pains the spot and the spot outer pains the spot and the spot outer pains the spot and the spot outer pains the

Iris dark brown; bill black; legs white.

Field Identification.—A Himalayan bird with a peculiar loud call, found on mountain streams in forest; pied black and white, with a deeply-forked tail which droops at the end, and is incessantly swaped up and down. The markings on the upper surface form in life a white St. Andrew's-Cross on a black ground.

Distribution.—The Spotted Forktail is found throughout the Himalayas, and farther eastwards through Assam and Siam to China. It is divided into several races, of which two are Himalayan.—The typical race is found throughout the Western Himalayas from 3000



Fig. 15-Spotted Forktail (1 nat. size)

to 12,000 feet from the extreme North-western Fronier to Nepal.
From Nopal eastwards to Sikkim and Assam, and still farther east,
from the state of the state of

The Slaty-backed Forktail (Enicurus schistaceus), common in the Eastern Himalayas, is of the same type with a long forked tail. The crown to the lower back are slaty blue-grey. The Little Forktail (Microcichia scouleri), however, found throughout the Himalayas, has also the super than balf the wing in length.

Habits, etc.—The Forktail is a water-bird, strictly confined to running streams in hill ravines, preferably those that flow under

fairly thick forest. It feeds on insects which it obtains from the water and the stream-bed; it walks sedately over the stones along the margins of the water, feeding with a quick pecking motion, rather similar to that of a chicken; and as it goes the black and white plumage blends marvellously with the glint of flowing water and the dark shadows amongst the stones so that it is seldom moticed till it takes to flight. It has a habit of frequently and unexpectedly turning at right angles or from side to side, and now and again it advances with little tripping runs, the white legs passing over the slippery stones with a sure-footed celerity. Standing and moving, the beautiful forked tail is always a characteristic feature, slowly swaying upwards and downwards.

The call is a loud, rather plaintive dower, uttered both on the ground and in flight, and it is usually the first intinuation of the presence of the bird that fice up from the bed of a stream that one is slowly climbing and settles again by the water some fifty yards or so above; again one disturbs it and the maneuvre is repeated. Then as one reaches the limit of its territory it cleaves the stream, and slipping through the neighbouring forest regains the water below one and starts to feed again; o coasionally for a few inmutes it nevelues

on a bough of a tree, but this is seldom.

The breeding season lasts from April till June.

The nest is a most compact and heavy cup of green moss mixed with fine roots and a good deal of clay; the cavity is lined with skeletonised leaves. It is placed near the water, in a niche of rock or a hollow of the bank, or amongst the roots of a tree.

The clutch usually consists of three eggs, but four are sometimes laid. The egg is a rather elongated and pointed oval, fine in texture with very little gloss. The ground-colour is pale greenish or pale store-colour, and the markings consist of fine spots and freekles of vellowish- or reddish-brown, venuls and often thinly distributed.

The egg measures about 0.68 by 0.75 inches.

THE BLACK REDSTART

PHŒNICURUS OCHRURUS (Gmelin)
(Plate vi, Fig. 1, opposite page 120)

Description.—Length 6 inches. Male in freah antumn plumage, Body plumage black, more or less onceated by grey fringes which war off as the winter progresses so that the bird gradually becomes blacker in appearance; the hinder parts from the rump and abdomen orange chestnut, except the central pair of tail-teathers which are brown; light-feathers and the larger coverts brown edged with rufous. Female: Brown tinged with fulvous, paler below and suffused with orange from the abdomen downwards; a pale ring round the eye; rump and tail chestnut, the central pair of feathers brown.

Iris dark brown; bill and legs black.

Field Identification.—Abundant winter visitor to the plains, easily distinguished from all other birds by its habit of shivering the reddish tail at short intervals.

Distribution.—The Black Redstart is a widely-operad species occurring almost throughout Europe and Asia and in portions of Africa. In this immense range it is divided into a number of races all very similar in appearance, of which two are to be found in our area, P. o. phomicomoides breeds in Perias, Turkestan, and Afghanistan, and in the mountains of Blackstain; it also breeds in the high mountain areas, over 10,000 feet, of Kashmir, Ladakh, and Western Tibet north of the Central Himslayan range, where forest country has given place to the decolate barren valleys and mountains beyond the reach of the monsoons. In the winter, from September to April, it migrates to the plains of North-western India, extending south as far as Northern Guzerat. P. o. ruffectific occupies a more eastern range, breeding from Tibe to China and wintering in South-western China, Burma, Assum, and North-eastern, Central, and Southern India. This form was noticed as high as 20,000 feet on migration by the Everest Expectition.

The Blue-fronted Redstart (*Phænicurus frontalis*), easily recognisable amongst the members of its genus by the black terminal band to the chestnut tail, breeds in a high zone about 10,000 feet in the

Habiti, etc.—Those who are fortunate enough to travel in the high Himalayas in summer is the barren uplands of Kashmir and Ladakh, Triber, Spiti, and Labul, will recognise in the Black Reducts one of the most familiar of the roadside birds—all the more countered to the most familiar of the roadside birds—all the more countered to the most familiar of the roadside birds—all the more countered to the most familiar of the roadside, now indulging the neighbourhood of eggs or young by the low anxious alarmator; and all the time amongst their restless movements the characteristic shaver of the tail is seen. There up on the breeding grounds the bird is very shy and cautious, but in the winter when it descends to the Indian plains this trait is lost and it becomes one of the most pleasant and friendly of our garden birds; in fact its whole character appears to change and only the shiver of the tail remains to recall our friend of the barren heights. In India it is essentially a bird of open smiling cultivation and pleasant fertile gardens; it humst the shade, not of deep groves and jungles but little patches of shade amongst the sunshine, perchaing on the lower branches of trees and

flying down ever and anon to the ground to pick up its insect food. The call then is a curious little croak.

As in most brids that breed at high elevations the breeding season is late, eggs being laid in June. The nest is a large substantial edge of fine twigs, bents, notes, grass stems, moss, and similar materials, lindich with shreds of grass, hair, and feathers. It is placed in walls (beind are built of loose stones and without mortar in countries where this species breeds) or under stones on the steep bill-sides.

The clutch consists of four to six eggs. The eggs are of two types, very pale greenish-blue or almost pure white, with a slight gloss but

no markings.

They measure about o.80 by o.60 inches.

THE WHITE-CAPPED REDSTART

CHAIMARRHORNIS LEUCOCEPHALA (Vigors)

(Plate vi. Fig. 4. opposite page 120)

Description.—Length 7 inches. Sexes alike. Top of the head shining white; rest of the head, neck, back, breast, and wings black; the rump and lower plumage from the breast downwards bright chestmut; tail chestmut, a black band across the tip.

Iris dark brown : bill and legs black.

Field Identification.—A bird of the Himalayan streams and rivers where they are not closed in with trees. Quite unmistakable with shining white cap, black and chestnut plumage, and chestnut tail ending in a black bar.

Distribution.—The White-capped Redustr is found from the hills of Baluchians and the Afghan frontier right along He Himalyza and farther east to Western China, occurring in all the higher mountain systems of this area. It breeds at elevations between 6000 and 16,000 feet, individuals wandering even higher, but the majority of nests are certainly to be found between 8000 and 15,000 feet. During the winter it descends from high altitudes and is common along all the trees of the foot-hills to the dege of the plains.

Habits, etc.—This lowely Redutar is familiar to all who have done much travelling in the higher altitudes of the Himalayas. It is strictly a water-bird dwelling on rivers and mountain streams, whether they flow amongst the verdant slopes and wooded precipies of the Outer Himalayas or through the barren valleys of the Inner and Central Himalayas where story scree and tortunes glacies wind down from the snow-chad peals. In the desolation of the latter surroundings the leautiful plumage and the cheerful ways of the



t. Verdier Flourities & Grandmand Flynatcher, 3 Ashy Wren-Warbler, a Todolf, Sine Espander, 3 Little Minives, (Adi about 2 nat. sine).



1. Verditer Flycatcher. 2. Grey-headed Flycatcher. 3. Ashy Wren-Warbler.

It is pre-eminently a bird of the boulders amongst rushing water, and often drifts of snow, flying swiftly from bank to bank or flycatching with little erratic flights from stone to stone, its loud plaintive squeak t-e-e-e being easily heard amongst the roar of the waters. During the breeding season different pairs have their territory defined along the torrents where they live.

As with most Redstarts, the tail is an expressive organ. Continuously the bird beats it up and down from well above the line of the back, almost to touch the stone on which it is sitting, and the action is frequently accompanied with a low bow; this is done with the feathers closed or only partly spread; but as the bird launches into flight or settles the tail is spread into a fan for a moment, a glorious

This species is stronger in flight than the Plumbeous Redstart. and profits by the fact to leave the stream-heds and pay hasty visits to wet, mossy cliffs, steep marshy hill-sides, and similar situations,

The breeding season lasts from May till August, but most nests will be found in July. The nest is a rather deep and massive cup of moss, leaves, roots, and grass, with a thick lining of wool and hair, It is placed in a hole of a wall or bank beside the water, or more rarely

under a stone or amongst the roots of a tree. The eggs vary from three to five in number, but the ordinary clutch consists of four eggs.

In shape they are broad ovals with only a slight gloss; the groundcolour is a pale blue or blue-green, sometimes tinged with pink, and the markings consist of specks and spots of reddish-brown, with underlying markings of grey and neutral tint. These markings vary in number and intensity, occasionally collecting into a cap at the

The egg measures about 0.96 by 0.65 inches.

THE PLUMBEOUS REDSTART

RHYACORNIS FULIGINOSA (Vigors)

(Plate vi, Fig. 2, opposite page 120)

Description.-Length 5 inches. Male: The whole plumage dull

Female: The whole upper plumage dull bluish-brown, the tail white with a large triangle of brown at the end; wings brown, edged with pale rufous; lower plumage ashy-brown squamated with ashy-

Iris dark brown; bill black; legs dark brown.

Field Identification. Himalayan species. Never seen away from

running water, perching on the boulders and fluttering from them into the air. Male, blackish-slate with a chestnut tail; female, grey with a white tail, tipped triangularly with brown.

Distribution.—The Plumbeous Redstart is found throughout the whole length of the Himalayas, where it breeds commonly from 4,000 to 9000 feet and in smaller numbers up to 13,000 feet, though it is certainly unusual to find it above 10,000 feet. During the winter it leaves the higher portion of its habitat and is then found from 6000 feet right down to the foot-bills. Apart from this altitudinal movement it is a readlent species.

Habits, etc.—The Plumbeous Redstart is purely a water-bird, closely wedded to the streams and rivers of the Himalayas, eschewing their wider and more placid reaches, and preferring tumultuous waters rushing down the steeper slopes and broken by large boulders.

These graceful little birds strike the notice of even the least observant. No stretch of stream is without its pair, which spend all their time on the boulders in the middle of the rushing water. with occasional excursions to the bank or to the bough of some adjacent tree. They flit from stone to stone and continuously make erratic little fluttering darts into the air after some passing insect, or snatch some morsel from the water's brim; as they settle, the conspicuously-coloured tail, chestnut in the cock, brown and white in the hen, is slightly fanned and wagged up and down, the two movements being simultaneous and repeated at intervals until the next incursion into the air. This movement of the white tail has been aptly compared to the scintillations of light on water slightly disturbed. They are as quarrelsome as restless, and appear to have sharplydefined territories, for the male with a provocative little snatch of song is always launching attacks at the intruder from some other territory, dashing at it regardless of sex and chasing it back to its own borders. The short song is rather sweet and jingling and may be heard occasionally in winter as well as in the breeding season. It is uttered either from some rock in midstream or in the air as the little bird slowly flies with even movement but rapidly vibrating wings in a short parabola from rock to rock. This species always feeds very late into the dusk.

feeds very late into the dusk.

The breeding season lasts from April to July and two broods appear to be raised.

The next is a neat cup of moss mixed with a few leaves and roots and lined with fine roots and fibres or wool and hinr. It is placed in any sort of hole or hollow provided that it is close to running water, in it yo on a tree, in a hole in a tronk, in a hole of a rock or bank or wall, or on a small elege. Two nests will occasionally be found a few inches apart, but these merely represent successive occupations of a favoured site.

The egg are three to five in number, but four is the normal clusts. They are more or less broad outs in slape, rather pointed towards the small end, of a fine texture and with a slight gloss. The ground-colour is a palg gerenish-white or sometimes a faint stone-colour, almost entirely obscured by the markings, which consist of a motting and freedling of somewhat pale and dingry gelowish-or reddish-broad and freedling of somewhat pale and dingry glowlows for reddish-broad red. These markings have a tendency to collect in a cap at the broad end, the colour process of the gas of the White-capped Receivary.

They measure about 0.76 by 0.60 inches.

THE BLUETHROAT

Cyanosylvia svecica (Linnæus

(Plate vii, Fig. 6, opposite page 144)

Description.—Length 6 inches. Fully adult male in breeding plumage: The whole upper plumage and wings brown; tail brown, a conspicuous chestunt patch in the base broken by the central pair of feathers; a fulvous line over the eye; chin and throat bright blue with a chestunt spot in the centre of the blue; below the blue a blackish band and below this a broader band of chestunt; remainder of lower plumage buffish-white. The blue and chestunt of the lower plumage vary according to age, season and race and in some specimens are almost absent. Occasionally the chestuat spot is entirely

Female: Differs from the male in having the whole lower plumage buffish-white with a gorget of brown spots across the breast.

Iris brown; bill black, fleshy at base of lower mandible; legs

Field Identification.—A brownish bird, found on the ground in herbage, preferably in damp localities; rises at one's feet with a conspicuous flash of the bright chestmul patches in the tail and dises into cover again a few yards ahead. Males have a varying amount of blue and chestmut on the throat and breast.

Distribution—The Bluethroat is a very widely distributed Palsaractic species, occurring in different forms through the greater part of Europe, Asia, and Northern Africa. The exact number of races and their distribution has not yet for the control of the control

winter visitor to the north-east, while C. s. abbotti migrates through the north-west; this is the form which breeds in Ladakh and is distinguished by the brilliant blue of the throat and by the fact that the chestnut throat spot is often lacking or replaced by white. In this race the female in breeding plumage is similar to the male.

The allied Rubythroat (Calliope calliope), with the upper plumage olive-brown and a brilliant patch of ruby-scarlet on the throat, is common in winter in North-east India down to the Godavari. It

breeds in Northern Asia.

The much darker Himalayan Rubythroat (Calliope pectoralis) in which the ruby throat is set in a deep black breast breeds along the whole of the Himalayas at high elevations. It is common on open hill-sides in Kashmir.

Habits, etc.-From September until May the Bluethroat is a common species in India either as a passage migrant or a winter visitor, but its movements have not yet been properly worked out. It does not breed nearer than Ladakh. Although extremely common at certain times and places it escapes observation through its skulking habits. It is a bird of the ground and heavy cover, preferring dampish spots, such as reed-beds on the edge of iheels, tamarisk thickets in river-beds, heavy standing crops and similar situations. In these it feeds on the ground, only occasionally ascending to the top of the bushes to look around. Ordinarily it is only seen when one walks through cover, as it dashes up at one's feet and flies a few yards before diving headlong again into obscurity, where it runs rapidly along the ground in short-bursts; at the end of each course of running the tail is elevated and slightly expanded; the dark brown tail with its bright chestnut base is very conspicuous in flight and readily leads to identification. The alarm-note and ordinary call is a harsh tack, but on its breeding grounds this Bluethroat is a fine songster and mimic

C. s. abbotti breeds in Ladakh in June and July. The nest is well concealed on the ground at the base of thorny bushes, and is a cup composed of dry grass. The usual clutch consists of three

The egg is a rather broad oval, fine in texture with a slight gloss. In colour it is a dull, uniform sage-green, with or without pale reddish freckling, which sometimes almost obscures the ground-colour.

THE INDIAN ROBIN

Description.-Length 7 inches. Male: Glossy black with a blue sheen; a white patch on the shoulder; flight-feathers brown; centre

Female: Upper plumage dark brown, the front and sides of the face paler, the tail much darker, almost black; centre of abdomen

Iris dark brown : bill and less black.

The bill is slender and rather curved; the tail is rather long and

rounded at the end. Field Identification.—A familiar plains bird, coming freely mund houses and spending most of its time on the ground. Easily identified

by the habit of holding the long tail erect so as to exhibit a bright chestnut patch below its base; the male has a conspicuous white shoulder-patch and much black glossed with steely-blue in its plumage. Distribution.-The Indian Robin is found throughout the whole

of India from the Himalayas southwards to Cevlon. The typical black-backed race with a very dark, almost black female is found in Ceylon. S. f. cambaiensis occurs throughout Northern India from the hills of the North-west Frontier Province along the fringe of the the male has the back brown while the female is grey and brown in colour. Between the two, races connecting them may be recognised. These are first S. f. intermedia which occurs in a broad belt right across the centre of the Peninsula, bounded on the north by a line from the River Tapti to Vizagapatam district and on the south by the Krishna Riyer; and secondly S. f. ptymatura which occupies the rest of South India. They bridge the colour differences between the first two forms. All four races are strictly resident.

Habits, etc.- Those who like to dilate on the theme that the East is topsy-turvy often quote the Indian Robin amonest their numerous illustrations, pointing out that he wears his red under his tail instead of on his breast; for this bird, while in no sense a true Robin, somewhat occupies in India the place of the Robin in the outskirts of villages, buildings both great and small, brick-kilns and

In character it exhibits the curious mixture of boldness and

suspicion that is found in so many Indian birds. So long as unmolested, it hops about in the close vicinity of men and women busy at their own tasks, apparently heedless of them; but at the first hint of danger it becomes shy and unobtrusive. In the same way, though the nest may be built in a hole in a stable wall or similarly public spot, it is readily deserted if attention is paid to it.

In demeanour the bird is very sprightly, hopping about with the head held stiffly high and the tail cocked well forward over the back; in fact its normal poise is that of the English Wren, and the



Fig. 16-Indian Robin (1 nat. size)

bird being larger with a longer tail the attitude appears more exaggerated. It feeds for the most part on the ground, and perches by preference on walls, posts roofs and large gnarled tree-trunks, rather than on the boughs of trees. The food consists chiefly of insects and their larvæ.

It has only an apology for a song, which is used while

March to August and two or three broods are reared, often in the same nest though the lining is usually replaced. The nest is placed in holes in all

sorts of situations on the ground, in walls and buildings, and in plants. It is a pad of grass lined with miscellaneous soft materials, roots and fibres, wool and hair, varying in depth and neatness of construction according to the circumstances of the hole. A large proportion of nests contain a fragment of snake's slough.

Three to five eggs are laid. The egg is a rather elongated oval, more or less pointed towards the small end: the texture is fine and strong with a moderate gloss. The ground-colour is white, faintly tinged with green, pink, or brownish; the general character of the markings is a fine close speckling and mottling of different shades of reddish- or yellowish-brown, underlaid with a few secondary markings of pale inky-purple; there is a tendency for the markings to be thicker about the broad end.

The egg measures about 0.79 by 0.59 inches.

THE MAGPIE-ROBIN

Copsychus saularis (Linnæus)

Description. Length 8 inches. Male: Head, neck, breast, and upper plumage glossy black; remainder of lower plumage white; wing black, a white patch close to the body; tail long and graduated, the two central pairs of feathers black, the remainder white.

Female: The whole upper plumage uniform dark brown, glossed with bluish; wings and tail dark brown, with white distributed as in the male. Chin, throat, breast, and sides of the neck and face dark grey, the last mottled with white; remainder of lower plumage whitish washed with fulvous on the flanks and under the tail.

Iris brown ; bill black ; legs dark plumbeous.

Field Identification.—Common plains species, found in gardens and familiar in habits, with a beautiful song; the male conspicuously duller version of the same pattern. Carries the tail rather elevated.

Distribution.—The Magpie-Robin or Daval-bird extends throughout India and Ceylon to China and the Malay Islands, and in this wide

Within our area, however (except in the extreme south, from the Niloiris and Bangalore to Travancore, where the birds grade into the Cevlon race C. s. ceylonensis), all birds are referable to the typical

This bird is found alike in the plains and in the hills up to about 4000 and occasionally to 6000 feet. It occurs in the Outer Himalayas, but is virtually absent from Sind, Cutch, and large portions of the Punjab and desert Rajputana. Although said to be only a winter visitor to Mount Aboo and Northern Guzerat, it is usually regarded as a strictly resident species; except that in the Himalayas it ascends a couple of thousand feet in the breeding season, and also penetrates then into some of the inner valleys.

Habits, etc. - While never particularly abundant the Magpie-Robin is very generally distributed in India, avoiding both dense delights to move about on the ground under the shelter of low trees : thick undergrowth it dislikes. Naturally, therefore, it is a familiar garden bird, delighting in the mixed chequer of sunshine and shade that is the characteristic of an Indian garden; it hops about under the orange and pomegranate trees, pauses for a moment to sip the water running along the irrigation channels, and then flies across amongst the trees to settle on some lower bough or on the garden wall before returning to its quest for insects on the ground. It is both confiding and unobtrusive, and as the lady of the house

moves about her garden in the shade, whether she be Burn-Memsshib or some humble menial's wife, she will see the little pile brid watching her from wall or bush with friendly and attentive secretiny. And by way of gratitude for shelter and protection (or so we like to think in spate of prossic fact), the cock brid early in the morning and again in the evening mounts to the topmost bough of one of the garden trees and pours out his delicious song. For the



Fro 17 Magnie-Robin (4 nat size)

Magpie-Robin is one of the best songsters in a land where singing birds are somewhat scarce.

birds are somewhat scarce.

The tail is carried very high over the back, though not usually as high as in the case of the Indian Robin; it is frequently lowered and expanded into a fan, then closed and jerked up again over the back.

The food is obtained for the most part on the ground and consists of insects, grasshoppers, crickets, ants, beetles, and the like; a little vegetable matter, and an occasional earthworm vary this diet.

The breeding season lasts from the end of March to the end of July, but most eggs will be found in April and May. The nest is placed in holes in tree-trunks, in banks and walls, and in the roofs of houses. It is a cup composed of roots, grasses, fibres, and feathers,

with very little definite lining, and varying a good deal in depth and compactness of construction, according to the circumstances of the

The clutch usually consists of five eggs.

The egg is a typical oval, hard and fine in texture with a fair amount of gloss. The ground-colour is some shade of green but is rather variable. The markings consist of streaks, blotches, and mottlings of brownish-red, usually densely laid on and with a tendency to be thicker about the broad end.

The egg measures about 0.87 by 0.66 inches.

THE SHAMA

KITTACINCLA MALABARICA (Scopoli)

Description.—Length 11 inches, including a long graduated tail of 6 inches. Male: A patch above the base of the tail white; remainder of upper plumage, wings, and lower plumage to the lower breast glossy black; remainder of lower plumage bright chested except the thighs which are whitish; tail black, all but the two central pairs of feathers broadly white at the ends.

Female: Resembles the male, but the black is replaced by slatybrown, and the chestnut by rufous; feathers of the wings narrowly

edged with rufous.

Iris dark brown; bill black; legs pale flesh-colour.

Field Identification.—A forest bird, found in thick jungle about ravines and remarkable for its beautiful song; the male is black with chestnut belly and much white about the long graduated tail; the female plumage is a duller version of the same pattern.

Distribution.—The Shama is widely distributed in India, Ceylon, Burma, Siam, the Malays and China, and is divided into various races.

The typical sec of the Shama is found along the western side of India, from hosp to Travanoure, and up the extern side as far as the property of the state of the state of the state of the Rajmehal Hills; also in the submontane tracts of the Rajmehal Hills; also in the submontane tracts of the India the Shama to the state of the state of the Shama to the The Burnese race K. m. indica, with a shorter tail, extends through Assam into the Duras. K. m. legger in Ceylon is very different in that the female is similar to the male in colour. It is a resident species, occurring in warm well-watered jungles up to a height of 4500 feet.

Habits, etc.—The Shama is well known by repute and in story as one of the famous singing birds of India, but owing to its forest habitat and its shyness it is probably known by sight to comparatively few people. It lives in jungles and forest wherever

broken ravines and low hills supply a sufficiency of the small streams and open glades to which it is partial; and the spots that it frequents generally contain a good deal of bamboo growth. If feeds mostly on the ground, searching for insects, worms and fallen fruits, but when disturbed flies up into the trees. In short, this species may be considered as taking in forest the place occupied by the Magpie-Robin in one and inhabited country.

The song is loud and beautiful with a varied range of notes, and it is chiefly uttered in the mornings and evenings, continuing late in the evening until darkness has practically fallen.

This bird has a curious habit, chiefly in the breeding season, of



Fig. 18-Shama (4 pat. size)

striking the wings together above the body as it flies across open ground.

The breeding season is from April to June. The nest is usually placed in the base of bamboo clumps amidst the mass of rubbish, which collects in such situations and which forms a shelter over the nest; the nest itself is a slight cup of dead leaves and moss lined with grass.

The clutch consists of four or five eggs.

The egg is a moderately broad oval, rather pointed and compressed towards the smaller end, fine and compact in texture with a fair gloss. The ground-colour is dull greenish-stone, finely and densely freckled all over with raw sienna-brown and dull purplish, the general effect recalling the eggs of the Larks.

The egg measures about 0.85 by 0.65 inches.

THE NILGIRI BLACKBIRD

TURDUS SIMILLIMUS Jerdon

Description.—Length 10 inches. Male: Top of the head black; remainder of upper plumage dark ashy-plumbeous; wings and tail black washed with ashy; the whole lower plumage dark ashy-brown, the edges of the feathers slightly paler.

Female: The whole upper plumage dark ashy-brown; the whole

lower plumage brownish-grey, streaked on the chin and throat with dark brown.

Iris brown, eye-rims yellow; bill reddish-orange; legs orangeyellow.

Field Identification.—Abundant in the Nilgiris and Palni Hills.

A typical forest Blackbird but paler in colour than the English birds, so that a black cap shows up in the male.

Distribution.—Mount Aboo: Peninsular India, south of a line from Khandesh through Pachmarhi to Sambajpu: Ceylon. The well-known Nilgiri Blackbird gives its name to a group of five closely-allied sub-pecies, which differ chelly in depth of coloration. T. s. maheattensis, in which the pale collar is most conspicuous, is found at Mount Aboo, perhaps as a summer vision only, and in the Western Chats from Khandesh to Mahabar, wandering in winter as far south as Travancee. The typical form is found in the Brahmargheries and Nilgiris, probably extending also to the higher ranges of Western Myore. T. s. boundless of Western Myore. T. s. boundless of the Central Provinces is still in doubt but a distinct rate. T. s. species is found along the Eastern Chats. These Blackbirds occur up to the highest points in the various hill ranges and are mainly resident bisits.

Habits, etc.—The Nilgiri Blackbird, to treat more particularly of the best-known form, is one of the commonest brids a Otoscamulo and its vicinity, being found chiefly in the Sholas on the tops of the ranges, but also in other types of country. It enters orchards and gardens, and on the whole is a time familiar species though shy when nesting. It feeds chiefly on the ground, bupping with active movements and curring over dead leaves for insects, worms and fallen fruits, but when disturbed files up into the trees, fitting from tree to tree with powerful lights. Small berries and fouts are esten in the

The breeding season is somewhat extended, from March to August, though most nests will be found in April and May. At this period the males sing very beautifully, perching high up in the trees; they may be heard at all hours but especially in the evenings. 108

In the details of its breeding this bird recalls the familiar Englais bird. The nest is a massive, well-built cup made of moss, roots, grass, and leaves largely plastered together with mud, while the eggcavity is neatly lined with grass and roots. It is placed in a fork of a tree or shrub at any height up to about 20 feet from the ground.

The usual clatch comists of two to four eggs but five are some times found. The egg is a broad oval, pointed towards the smaller toul, the texture is fine with a slight gloss. The ground-colour writes from bright blue-green to dull olive-green; the marking consist of spots, speckles, mottlings, and streaks of brownish-red, with secondary spots and clouds of purplish-pink or grey.

The egg measures about 1.17 by 0.86 inches.

THE GREY-WINGED BLACKBIRD

TURDUS BOULBOUL (Latham)

Description.—Length 11 inches. Male: Entire plumage deep glossy black, paler and duller beneath; a wide ashy-grey patch across the upper sides of the wings.

Female: Entire plumage olivaceous ashy-brown, the wing-patch

being pale rufous.

Iris brown, eye-rim orange-yellow; bill coral-red to deep orange,

dusky at the tip; legs brownish-yellow.

Field Identification.—Himalayan forest bird with a good song; resembles the corresponding sexes of the English Blackbird with the addition of a broad patch on the wing, silvery in the male, rufous in the female.

Distribution.—The Greywinged Blackbird is a common Himalayan species extending from Hazara and Kashmir on the west to the extreme east and south of Assam and Manipur. It breeds chiefly in an intermediate zone between 7000 and 8000 feet and in smaller numbers up to 10,000 and down to 4000 feet. It is in the main a resident species, but during the winter months tends to leave the higher portions of its range and drift down towards the foot-hills, stragglers at this season even venturing into the neighbouring plains districts.

The White-collared Blackbird (Turdus albocincta) is common in the Himalayan forests about 8000 to 9000 feet. The male is black in

colour with a broad white collar round the neck.

Habits, etc.—This is one of the finest and best-known songsters of the Himalayas, being frequently caged and sold under the name of Kastura. It is a typical Blackbird in its habits, and is more

particularly a forest bird, feeding on the ground amongst the undergrowth, and turning over dead leaves and digging with its besk in places where the soil is soft. From the ground it obtains worms, grubs, insects, and fallen seeds and fruits, and it is also accustomed to eat large quantities of the various hill fruits and berries from the trees. At any time of day in the breeding season, but more particularly in the mornings and evenings, the males may be heard singing, usually from the top of a tall tree commanding as wide view around. The song is very pleasant, recalling that of the English Blackbird, but individuals vary a good deal in the merits of their performance. It midwidnals vary a good deal in the merits of their performance, the other control of the performance of the control of the control of the revenue that the top of the control of the received the performance.

The normal breeding season is from May to July.

The next is a rather massive cup of roots and grasses usually stiffened with mud and liberally coated externally with green moss and similar materials, and lined with fine dry grass. The majority of nexts are built in trees, some 10 or 20 feet from the ground, but others are placed on ledges of rock or on steep banks or

The eggs vary from two to four in number. They are of the usual Blackbird type. The ground-colour, where visible, is a pale dingy green, but it is thickly streaked, mottled and clouded with dull brownish-red sometimes so heavily as to obscure the ground-colour.

The eggs measure about 1.20 by 0.85 inches

TURDUS UNICOLOR Tickell

Description.—Length 9 inches. Male: The upper plumage including the wings and tail ashy-grey; lower plumage slaty-grey, paler on the chin, and becoming white towards the tail, the under the chin and become the chin and become the chine.

Female: Upper plumage olive-brown, the wings and tail darker; chin and throat white, streaked on the sides with black; breast olivaceous with a gorget of black spots across the upper part; flanks ochraceous; abdomen to the tail white; under wing-coverts chestnut-

Iris brown; eye-rim greenish-yellow; bill and legs yellow.

Field Identification.—A quiet, dull-coloured Thrush which feeds on the ground and flies up into the trees when disturbed. Most familiar as the bird that feeds on the lawns at Srinagar, where it is particularly common.

Distribution.-This species is only found in the Indian Empire It breeds commonly but locally in the Himalayas from Chitral to Eastern Nepal. It is migratory, and in winter moves down into the plains of India, being found at that season as far south as Khandala, Raipur, and Vizagapatam, travelling eastwards also to Sikkim, Cachar, and Manipur.

A rather larger species, the Black-throated Thrush (Turdus atrogularis), in which the male has the chin, throat and breast black, is a very common winter visitor to the Himalayas and Northern India.

Habits, etc.-This Thrush is known to everyone who has visited Kashmir, and it is one of those birds which contribute to the very

English atmosphere of Srinagar.

The song may be heard from April to July and it sings at all hours of the day but more especially in the mornings and evenings. and on cloudy days with rain impending. The song recalls that of the English Thrush though less full and varied, and is something as follows: -chellya-chellya-chirrali, chellya-chellya-chellya, chellyachellya-jalia; and it further recalls that familiar bird by its presence round houses and in gardens, and its habit of hopping about the lawns of the English quarter in search of worms and snails, uttering often a juk-juk which at other times is used as an alarm-note. Pairs are to be found in every grove round the villages, and it is a tame and familiar bird, haunting their neighbourhood in preference to the forests, where also however it is found in smaller numbers. At the nest, on the other hand, it is rather shy.

It breeds in May and June. The nest is a large deep cup, sometimes neat and compact, at other times loose and untidy; it is composed of moss, either dry or green, roots, dry grass and a few leaves, and is lined with fine roots. It is placed usually at heights between 6 and 20 feet from the ground, in the heads of pollard willows or in the forks of trees or on branches close to the trunk.

The number of eggs varies from three to five. They are rather variable in shape, round, elongated, or pyriform ovals. The texture is fine but there is very little gloss. The ground-colour is greenishor reddish-white, and the whole surface is more or less thickly speckled or boldly blotched with dull reddish-brown, in some eggs the ground-colour predominating, in others the reddish tint of the markings; in all, however, the markings are thickest towards the

The eggs average about 1.06 by 0.78 inches.

THE ORANGE-HEADED GROUND-THRUSH

GEORICHLA CITRINA (Latham)

Description.- Length o inches. The whole head, neck and lower parts as far as the vent orange-chestnut, rather darker on the crown and hind neck; the rest of the upper parts bluish-grey; wings and tail brown, washed with bluish-grey, a conspicuous white spot on the shoulder and another on the underside of the quills; vent and under the tail white.

Female: Similar to the male but the orange-chestnut is paler and the ashy-grey of the upper parts, wings and tail is replaced by brownish

Iris dark hazel; bill very dark brown, base of lower mandible

The tail is comparatively rather short.

Field Identification.—A typical Thrush in bearing, bright chestnut in colour with the back, wings and tail bluish-grey in the male and olive in the female. In the Southern race the sides of the face are curiously banded with brown and white and the throat is white. A forest species usually found feeding on the ground in damp and

Distribution.-The Orange-headed Ground-Thrush has a wide distribution with several races in India, Burma, the Andamans and Nicobars, the Malay States and Siam. We are concerned here with ranges of the Himalayas from Murree to Assam and Burma, and still farther eastwards; also in Lower Bengal. In the Western Himalayas and Nepal it is a summer visitor. In the Eastern hills, moving up in summer into some of the inner valleys. The Chota Nagpore and Calcutta, stragglers wandering as far afield as Ratnagiri and Ceylon. G. c. cyanotus has a ring round the eye, the sides of the face and the chin and throat white; the white of the sides of the face is broken by two short oblique dark brown bands which run down from the lower border of the eye. This race is found as a resident south of a line roughly from Western Khandesh

and it will always be found by preference in damp and shady thickets or in thick bamboo-brakes. In such places it feeds solitary on the ground under thick tangles of roots and stems of brushwood. It them over in a constant search for slugs, insects, snails, caterpillars,

berries, and such like, and so constant is this habit that the beak is nearly always muddy, a fact remarked by many writers. It is shy and quiet and when disturbed promptly flies up into a bough where it sits silent and motionless waiting to resume its quest for food. Living thus in the shade it is crepuscular in habits and at dusk moves

out to roads and open spaces. In the breeding season the male has a pleasant and energetic, though not very powerful, song which is uttered from a perch well up in a tree. This is only heard in the early mornings and late evenings and the bird is something of a mimic, introducing the calls of other species into its song. It has also a peculiar note or loud whistle, something like the noise of a screeching slate-pencil, which is used apparently as an alarm-note.

The breeding season in the Himalayas is from the end of April until nearly the end of June. In Peninsular India it is later, from

The nest is a rather broad solid cup of moss, grass, stalks, bents and similar materials. Inside it is lined with fine roots and the black hair-like roots of moss and ferns. A good deal of mud and clay is usually built into the foundations. The nest is placed in a fork of a moderately sized tree, usually at no great height from the ground.

The clutch consists of three or four eggs, and five have been recorded. The egg is a moderately broad oval, a good deal pointed towards the small end. The shell is fine and fairly glossy, some or greenish-white and it is thickly freckled, blotched and streaked with brownish- or purplish-red. Some eggs have the markings fine and very thickly spread over the whole surface. Others have them thick, bold and blotchy all over the larger half with only a few small spots scattered over the rest of the egg. Intermediate varieties also occur.

The egg measures about 1.00 by 0.75 inches.

THE BLUE-HEADED ROCK-THRUSH

MONTICOLA CINCLORHYNCHA (Vigors)

(Plate vii, Fig. 4, opposite page 144)

Description.-Length 7 inches. Male: Whole head bright cobaltblue, divided by a broad black line from the beak through the eye to the back and shoulders, which are also black; rump and the lower plumage chestnut; wings black washed with blue, and with a conspicuous white patch on the inner quills; tail black washed with

Female: Upper plumage, wings and tail olive-brown tinged with ochraceous; chin and throat whitish; lower plumage whitish, tinged with ochraceous on the breast and largely barred with dark brown.

Iris dark brown; bill black, gape yellow; legs dusky brown.

Field Identification.-Familian song bird in summer along the lower Himalayas in light open forest, perching on trees and railings : male easily recognised by the blue head and throat, chestnut rump and lower plumage and white patch in the wings; female brown

It must not be confused with the larger Chestnut-bellied Rock-Thrush (Monticola rufiventris), also found throughout the Himalayas,

Distribution.-This bird breeds in the hills along the boundary of the North-western Frontier Province and throughout the Himalayas. to East and Southern Assam and the Chin and Kachin Hills. The majority breed between 2000 and 6000 feet, but a few range up to

April into the plains and continental ranges of India and portions

Habits, etc.-The Blue-headed Rock-Thrush is in the breeding season a bird of the more open hill forests, being especially typical of the areas in the lower Himalayas which are clothed with the Cheel pine (Pinus longifolia). Here the song of the male is a very song of tere-ti-di, tew-ti-di, tew-ti-di, tere (the tew descending in the scale and getting louder at each repetition), and it is commonly sung in the mornings and evenings. The bird itself is by nature secretive and not often seen until one is familiar with the alarm-note ee-tut-tut, a low, pleasant sound which soon gives away its whereabouts on a tree bough; then the bird is found to be confiding and to allow a near approach. It feeds both on insects and on berries, and in pursuit of the former sometimes flies out from a tree into mid-air hovering with wings outstretched, after the capture gliding down again to its post amongst the branches. Similarly, it often floats with wings outstretched, singing as it goes, from the top of a tall tree down to a lower one. In winter it is a solitary species.

The breeding season proper is from April to Iune, but occasional nests may be met with until August. The nest is a neat shallow cup of moss, grass, fir-needles and dead leaves, and is lined with fine roots or a little hair. The favourite situation for it is in a hollow in a bank by the side of a road or path, but it is also placed in hollows

The clutch consists of four eggs. The egg is a rather long oval, very blunt at the small end, of slightly coarse texture with a little gloss. The ground-colour is pinkish-white, very closely and minutely freedled and mottled all over, but most densely at the large end, with oale dinny salmon-colour.

The eggs measure about 0.92 by 0.72 inches.

THE BLUE ROCK-THRUSH

MONTICOLA SOLITARIA (Linnæus)

Description.—Length 9 inches. Male: Whole plumage dull dark on the though a the righten over the eye, on the sides of the head and on the threat, the feathers of the upper parts with brown fringes and the feathers of the lower plumage more or less barred with blackish and fringed with white; wings and tail dark brown washed with dark blue, most of the wing-feathers tipped with creamy white.

In summer the wearing off of the fringes on the body makes the plumage a brighter, more uniform blue with the wings dark in contrast.

Female: Whole upper plumage, wings and tail similar to the male the colour is much duller, almost ashy-brown in tint; chin, throat and upper breast creamy-buff the feathers margined with sooty-black, giving a scaled appearance; remainder of lower plumage creamy-buff barred with sooty-black.

Iris hazel; bill blackish-horn, mouth yellow; feet black, claws dark horn.

Field Identification.—A dark looking bird, the male bluish, the female speckled with buff and brown, invariably found perching solitary on rocks, brick-kilns or buildings and rather shy if approached.

Distribution.—A widely distributed species found in South Europe, Africa and the greater part of Asia. It is divided into many races, Of these we are chiefly concerned with the Central Asian and Himalayan race M. 1, poulso which breeds in our area from Chitral and Gligit along the Himalayas to Sikkim at all elevations from 4500 to 15,000 feet. From September and early October until April It spreads over the greater part of India and Burms, stragglers also reaching Cepton. It also winters in Siam, Indo-China, the Malay States and Sumatra. A greyer race M. 1. Indigentario breeds along the Northwest Frontier of India from the Norman to North Baluchianta and west Frontier of India from the Norman to North Baluchianta and Common and Common Management of the Common Management of the State William Common Management of the State Ministry values of the Eastern Himalays and Assem.

Habits, etc .- The Blue Rock-Thrush is one of those birds that is

strongly attached to a particular type of terrain. In the breeding season in the hills it is very much a bird of the rocks, frequenting boulder-clad hill-sides, open rocky ground or if it is breeding down in the tree zone, rocky screes, gorges or cliffs in open ground between the forests. With this insistence on the letter of its needs it is allo to occupy a very much wider altitudinal range for breeding than most species.

In winter, too, its special propensity is to the fore. Rocks it must have to live on and if they are not available in the shape of bills and boulders it finds a substitute in quarries, mined forts and unoccupied buildings, rocks on the sea-shore or even at the worst it takes retige on brick-kilns and piles of stone. In all these places the habits and demeanour of the brid are the same. It perches up on a point of vantage—be this boulder or cornice—stiting very creek and softeny reminding the observer that it is the Sparrow that sitted above on the house-top as Canon. Tristant pointed as sitted above on the house-top as Canon. Tristant pointed on the proposed of the proposed in the proposed of the proposed of

The male has a fine song, a soft nelodious but rather short whistle refiniscent of that of an English Blackbird, which is uttered both from a perch and on the wing and this may be heard occasionally also in the winter. When courting the male indulges in slow volplaning flights which show off his blue plumage to advantage in the

As to food the bird is fairly omnivorous. Insects are taken from the ground and on the wing; larvæ, worms, snails, lizards, berries and seeds all are grist for its mill.

The breeding season is from April to July.

The nest is placed in a hole or cleft of the rocks on steep precipitous ground and is usually partly screened from view, difficult to reach and often inaccessible. It is a shallow cup of roots and dry grass, lined with fine roots.

The clutch consists of four or five eggs. The egg is a regular oval experiment in texture with a fine gloss. The ground-colour is an excessively pale, slightly greenish-blue, sometimes unmarked, at other times speckled mostly at the large end with very minute brownish-red

It measures about 1-10 by 0.75 inches.

Ihang and Rhotak.

THE WHISTLING-THRUSH

Myophonus cæruleus (Scopoli)

Description.—Length 12 inches. Sexes alike. Entire plumage deep blue-black, becoming brighter and bluer on the wings and tail, and duller and browner on the abdomen; a welvety black patch in front of the eye; all the body-feathers more or less tipped with deep shining blue; some of the wing-coverts tipped with white.

Lei dark brown; bill yellow, blackish along top; legs black. Pield Identification—A large strong "Blackbird," bright prussianblue in favourable lights, found near water in the Himalayas; noisy with hards whisting calls; bold and conspicuous; black legs and black eye-rim at once distinguish it from the true Blackbirds, which have those parts yellow.

Distribution.—This Whistling-Thrush, found in Turkestra, China and authwards, in represented nou area by the race Mc. temnischili, which extends throughout the Himalayas from the hills of Baluchistan and the Afghan Frontier to the extreme east of Assam and to the neighbouring hill tracts, being replaced by another (M. e. agenei) from Eastern Barna to Occhie-China. It breeds from Eastern Barna to Occhie-China. It breeds from the occident of the state of the

An allied species, the Malabar Whistling-Thrush (Myophonus horsfieldii), which has a bright blue forehead and a brilliant patch of cobalt-blue on the wing, is common in South-western India, especially in the Nilgiris, where it is known as the "Whistling-Schoolboy."

Hubbit, etc.—This very common and typical Himalayan bird may be considered in some senses as a water-bird, a bird of rivers and mountain streams. True it is that it may be found anywhere in the mountains, dashing across the face of some precipious crag, fitting through the trees of the gloomiest pine forest or feeding on an open hill-ade, but a little observation will invariably show that its head-quarters are in some gonge watered by puring stream or rushing torrent. And further proof may be found in its ong and calls; it call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found and well call is a loud, mebidious whistle, and the song is found to the song is

rushing waters; in this they succeed, and the voice of this bird heard in some deep nullah where the water's roar stills all lesser sounds is appropriate in the extreme, and matching its surroundings attains to beauty.

There is something very tight-trussed and neat about the Whistling-Thrush as it hops and flies from boulder to ledge, from wall to brank; its hard, shiny feathers are pressed close to the body, and as the long tail sways slowly upwards above the long legs the bird seems the living embodiment of all the qualities of vitality and fitness that

one associates with nature and the hills.

The bird lays commonly from the end of April to June, but nests

may be found until August, as apparently two broods are often reared.

The nest is a very massive and heavy cup of moss dragged up by
the roots with mud still adhering to them; there is a thick lining
of fine grass roots and moss.

It is placed in the near vicinity of water, and is generally well protected, either by concealment or by difficulty of access; for the bird is very cunning in its arrangements, Sometimes it builds in a mossy bank or in some rocky cervice where the structure of the nest and overhanging foliage protect the site from wandering eyes; at other times the nest stands out patient to view, completions in the giant boulder encircled by rushing water or otherwise inaccessible. An occasional nest may be found in a tree.

The clutch consists of three to five eggs

The eggs are typically very long and pointed, fragile, and rather rough in texture. The ground-colour is franch-grey, greyshashelte or pale greenish, speckled and freekled with minute pink, pale purplish-pink to p pinkish-brown markings. These markings are generally rather thin, and there is a curious faded appearance about these even which is most unusual.

They measure about 1.40 by 1.00 inches.

THE DED BREASTED ELYCATCHER

SIPHIA PARVA (Bechstein)

(Plate ii, Fig. 3, opposite page 24)

Description—Length 5 inches. Adult male: Upper plumage boxes, also not the lead; sides of the head bluish-saby, with a nothing and provided bluish-saby, with a nothing and the say; wings dark brown; tail blackish-brown the head two-chirds of the feathers white, except of the central pair; chirn, throat and breast reddish-buff; remainder of lower plumage white washed with buff on the sides.

Female and immature male: The whole upper plumage brown, the wings and tail darker brown, the basal portions of all the tailfeathers except the central pair white as in the adult male; a whitish ring round the eye; whole lower plumage dull white, washed with buff on the sides.

Iris dark brown; bill brown; legs blackish-brown.

Field Identification.—A small brown bird with whitish under parts, and in some individuals with the throat and breast red, which fly-cathes in trees; easily recognised by the habit of jerking the tail upwards at intervals, thus exhibiting the white patches in its base; quiet in demeanour.

Distribution.—The Red-breasted Flycatcher is widely apread as a breeding species throughout Europe, Siberia, and Northern and Central Asia generally, and is divided into two races which migrate species of the species

The Kashmir Red-breasted Flycatcher (Siphia hyperythra) of very similar coloration, but with a more chestnut-red breast bordered with black, breeds commonly in Kashmir between 6000 and 8000 feet

and winters in Ceylon.

Another Himalayan Flycatcher with white in the tail is the Orangegorgeted Flycatcher (Siphia strophiata). It has the throat and breast sooty with a central orange patch. Common in the Sikkim area.

Hibbits, etc.—The main requisite of the Red-breasted Flyeatcher is trees, and provided that there is a sufficiency of such cover it is a matter of indifference to it whether it is in forest, in open cultivation, or in the neighbourhood of towns and villages. Although often descending to the ground to capture an insect it is an arboral species and a true flyatcher in its habits, frequenting chiefly the slady places within the boughs of large trees in which it sealted hawks and fift from bought to obugh. It is rather slay and secretive, and is jerky and restless in its movements, constantly filtring the tail over its back so that the white patch in the base of the feathers over the state of the state over the state of the three states of the states. There is a very distinctive, hard, juring note which is commonly uttered, while a plantine pring call, phence-place-plane, repeated at abort intervals, is used to express anger or alarm. It has a sweet and rather varied song in the breeding season, but this is not heard

in India. For its size this is a very pugnacious little bird, and fights freely with others of its own species.

The Red-breasted Flyestcher does not breed in our limits, but the breeding season in Kashmir of the allied species, S. Pspeptina, is in May and June. The latter nests in holes in trees at any height from 6 to 40 feet from the ground. The nest is a nest little cup of moss and dead leaves mixed with grass, chips and hair and lied with bair and feathers. The clutch consists of four or five eggs. These are rather broad ovals, pale sea-green or pale pinkish-stone.

They measure about 0.65 by 0.50 inches

TICKELL'S BLUE ELVCATCHER

MUSCICAPULA TICKELLIZE (Blyth

(Plate v, Fig. 4, opposite page 96)

Description.—Length 6 inches. Male: The whole upper plumage in the blue, still darker on the sides of the face, and brighter in a line from the nostril over each eye; wings and tail black, washed with blue; throat, breast and upper abdomen bright ferruginous; remainder of lower plumage pure white.

Female: A duller replica of the male.

Iris brown; bill black; legs greyish-brown.

The bill is wide and flattened at the base and fringed with long

Field Identification.—Peninsular India. A dark blue bird with throat and breast reddish and the rest of the lower parts white. No white line over the eye. Flits about the inner side of trees and bushes in shady woods and groves and continually sings a merry little song.

Dittribution.—Widely distributed through India, Ceylon, Barma, Malay Peninsula, Siam, and Annam. The typical race is found practically throughout India at all elevations except north-west of a line through Mussoorie, Sambhar, Mount Abos, and Kathiawar. It extends castwards into Assam and Barma. In Ceylon it is replaced by C. I. jerdoni which is decidedly darker above. A resident species exvent for short local migrations.

This species may very easily be confused with the Blue-throated Flycatcher (Musicapula rubeculoides) which breeds throughout the Himalayasa and wanders into many parts of the Peninsula in winter. The male has the chin and throat dark blue, whereas in Tickell's Blue Flycatcher the ferrugionous of the breast comes up to those parts, leaving only a tiny patch on the chin at the base of the beak blue. Another and very common Himalayan breeding species, and the property of the parts of the property o

Yet another common Himalayan species, best known in Kashmir, is the Slaty-blue Flycatcher (Muscicapula tricolor). The upper parts are slaty-blue, lower parts whitish and there is a white patch in each side of the tail.

Habiti, etc.—Tickell's Blue Flyacther is another forest-loving species which is found in thick over and shade, and particularly appeared with its found in thick over and shade, and particularly in the about amongst the banks of wooded streams. In such localities it flits about amongst the bughs and hunts for inseets, particularly in the network of aerial roots and creepers which are a feature of some of the southern jungles. It is a way brid and not always easily observed. When one is walking quietly through the jungle this Flycatcher will usually, when first met, come up close within a few yards and give vent to its short song as if challenging the intruder. Then it disappears and is not easily approached again.

The short metallic song is quite pleasing. It consists of a couple of sharp "clicks," followed by a little tune of five or six notes, which recall the song of the White-browed Fantail-Flyeather, but are harsher and not so loud. The song is incessantly repeated.

The breeding season lasts from March to August, but the majority of nests are to be found in June and July.

The nest is a small cup of moss of they leaves lind with a roots and a little hair placed in a small below in a variety most and a little hair placed in a small own of variety of situations—in banks or cook, in brickwork, on the window-ledges of situations—in banks or cook, in brickwork, on the window-ledges of situations—in banks or cook, in brickwork, on the order to see the supervised by the roots of a wild figure they have been sometimed by the roots of a wild figure they have most of the wild believe they have enabled tree.

The usual clutch consists of three or four eggs. The egg is a moderately elongated oval, somewhat blunt at the small end. The texture is fine with a slight gloss. The ground-colour is dings greyish-white, freekled with dingo otive-brown. The freekling is so excessively fine that the egg appears a dull olive-brown, rarely tinged with rufusor or reddish, more especially towards the broad end.

In size the egg measures about 0.75 by 0.56 inches.



Black Redstart. 2. Plumbeous Redstart. 3. Starling. 4. White-capps

THE VERDITER FLYCATCHER

FULLYING THAT ADDING (Sumingary)

(Plate v. Fig. 1, opposite page 96)

Description.—Length 6 inches. Male: A black patch in front of the eye; the whole plumage bright verditer-blue, concealed portions of the wings and tail blackish-brown; under tail-coverts broadly believed with white.

Female: Resembles the male, but is duller in colour throughout, and the chin and sides of the throat are mottled with white.

Iris brown ; bill and legs black.

The bill, which is flat, and viewed from above almost forms an

Field Identification.—Familiar summer bird about houses and gardens in the Himalayas; a conspicuous verditer-blue in colour, perching on exposed situations and hawking insects in the air with

active ingn.

Ditribution.—The, Verditer Flycatcher breeds throughout the Himalayas, in Assam, the Burness Hills, Yenanan, Shan States, Siam, Annam, and Westers China. It is divided into races, of which only the typical one concerns us. This breeds in the Himalayas from 4000 to 10,000 feet, and during the winter migrates down into Peninsular India, missing out most of the Punjab, Sind, and desert Rajputana, and extending as far as Trevanores.

The small and very dark looking Sooty Flycatcher (Hemichelidon sibirica) is common throughout the length of the Himalayas. It perches higher than most species, often at the tops of the largest trees.

perchies higher differ.—The Verdiere Flycutcher in summer is one of the flow birds of the Himlayam hill stations which struct the notice of even the least observable. It is a bold and confiding bird, frequenting jungle and gother alike, and perchaig in open exposed positions, where its brilliant colouring catches the sunlight and renders it conspicuous birds and the stationary of the sta

Normally it is found solitary or in pairs, but small parties collect on There appears to be no call-note, but the male has a loud and

It breeds from April till the middle of July, and probably two broods are reared.

The nests are remarkably true to type, fairly solid cups of green moss, lined with fine black moss roots. The majority are built under the overhanging crests of banks where the action of water and the binding qualities of tree-roots combine to form a gloomy hollow, in the side of which the nest placed in a hole is distinguished with difficulty. Banks by the side of roads and paths are especially affected. Other sites are under the small hill bridges, amongst the timber-work, or in the rafters and eaves of buildings. As the bird is very shy at the nest and always dashes out of it at the approach of passers-by and in front of them, it continually brings itself and its nest to notice.

The normal clutch consists of four eggs, though three or five may occasionally be found. The eggs closely resemble those of the English Robin. In shape they are a moderately broad oval, somewhat compressed towards the smaller end. The shell is fragile and with little gloss. The ground-colour is pinky-white, in some entirely devoid of markings, in others with a more or less conspicuous reddish-pink zone or cap of mottled or clouded markings, not defined specks or spots, which are generally nearly confluent.

In size the egg averages about 0.78 by 0.57 inches.

THE NILGIRI BLUE FLYCATCHER

Description.-Length 6 inches. Male: The whole plumage dull indigo-blue, becoming ultramarine-blue on the forehead and above the eye and duller and whiter towards the vent; a black spot in front of the eye; wings and tail dark brown, all feathers edged with blue, and the tail-feathers, excepting the central pair, pure white at the base.

Female: The whole upper plumage dull greyish-olivaceous with a dull blue patch above the base of the tail; wings dark brown, all feathers edged with rufescent; tail blackish edged with blue, all feathers, except the central pair, pure white at the base; lower plumage dull bluish-grey, tinged with olivaceous on the throat and with white about the vent.

Iris dark brown; bill horny-black; legs blackish-brown.

The bill is rather wide at the base and slightly flattened and fringed with hairs.

Field Identification.-A rather sombre-coloured Flycatcher with white patches in the base of the tail, found commonly in forest in the hills of extreme South-west India. The male has a good song and is dull dark blue in colour, rather brighter on the crown.

Distribution.-A resident species, confined to the hills of extreme South-west India where it is common in the Nilgiris, Biligirirangams,

Habits, etc.-The Nilgiri Blue Flycatcher is essentially a foresthaunting species and is abundant enough in those hills where it is found. It frequents overgrown hill streams and nullahs, the underplantations and the edges of forest clearings. It also often visits gardens.

a twig and utters the typical Flycatcher click click as it twitches its tail up and down. The song is very sweet, somewhat feebler than but very similar in character to that of the Pied Bush-Chat. Heard in a shola it has a somewhat penetrating quality. It lasts from five to ten seconds and is constantly uttered from some exposed twig on the top of a tree and it may be heard in most months of the year, of insects but a certain amount of small fruit is also apparently eaten.

The breeding season lasts from March till June but most eggs will be found about April. The nest is usually built in a cavity in a the hill-jungles and sholas: but it may also be found in holes in rocks of bridges. The nest itself is a soft mass of fine moss on a slight foundation of coarse moss and lichen or a few twigs. The egg-cavity can hardly be said to be lined, but a greater proportion of very fine black moss-roots enter into the composition of the nest here than elsewhere. One or two feathers are occasionally added.

The clutch consists of two or three eggs. These vary a good deal to a pretty, warm cafe-au-lait colour. In some eggs there are no

THE BLACK AND ORANGE FLYCATCHER

OCHROMELA NIGRORUFA (Jerdon)

(Frontispiece, Fig. 1)

Description .- Length 5 inches. Male: Top and sides of the head and hind-neck black; wings black; remainder of plumage rich orange-chestnut, somewhat paler on the throat and abdomen.

Female: Similar to the male but the black of the head and neck is replaced by greenish-brown, mottled with rufous in front of the eve-Iris brown; bill blackish-brown; legs greyish-brown.

The coarse broad bill is fringed with long hairs.

Field Identification .- Hills of South-west India. A small orangecoloured bird with blackish head-cap and wings but tail also orange. Found flitting about near the ground in the undergrowth of shady woods where its presence is revealed by an incessant chirruping note. easily mistaken for that of an insect.

Distribution.-Confined to the hill ranges of South-west India and resident at elevations from 2500 to 7000 feet and probably most common about 5000 feet. It is recorded from the Wynaad (scarce), the Nilgiris and Biligirirangams, the Palnis and the Travancore ranges,

but is curiously local and patchy in its distribution.

Habits, etc.-The Black and Orange Flycatcher must very soon become well known to all observers at Ootacamund and Kodaikanal. It is a bird of dense woods and thickets, preferring the most retired, shady and damp, swampy patches in the breeding season though at other times it ventures into the lighter woods and sholas. In such places it flits about the undergrowth singly or in pairs, reminding the English observer of a Robin in its ways. At one moment it is scated motionless on the low branch of a tree or a fallen stump or some thick tangle of dead branches. The next it makes a short swoop at an insect in the air or descends to the ground for a second to pick one up; but whatever it does or wherever it goes you will notice that it seldom leaves the neighbourhood of the ground, usually keeping within a spots this Flycatcher is by no means a shy bird and it does not resent observation from close quarters provided that one keeps motionless.

There is no true song, but the male is far from silent, uttering a somewhat metallic high-pitched chirrup chiki-riki-chiki or chee-r-ri-ri every few seconds which gives away its whereabouts, though the chirrup might easily be mistaken for that of an insect.

The breeding season proper is from March to May and a few eggs may still be found in June. The nest is a very remarkable structure for a Flycatcher, a large and regular ball of dry sedge and coarse grass, with a small entrance hole at one side near the top. It is entirely devoid of lining but is placed on a foundation of dead leaves. These are usually wedged into the centre of a small bush or clump of foliage, but the bird is also fond of building in the cluster of new shoots that rise from the stump of a tree that has been felled. The nest is normally built at a height of two to three feet from the ground and occasionally

The clutch consists of two eggs

The egg is a long oval in shape and the shell is very fine and delicate with little or no gloss. The ground-colour is pale grevishwhite or buffy-white, faintly but profusely freckled all over with pale pinky-grey or reddish and these markings sometimes form indistinct caps or zones on the large end of the egg-

The egg measures about or to by or sa inches

(Plate v, Fig. 2, opposite page 96)

Description.-Length 5 inches. Sexes alike. Head, neck and breast ashy, darker on the crown; remainder of plumage greenish-

The bill, viewed from above, is triangular in shape and thickly

Field Identification.-A forest bird; very small, greenish-yellow, with an ashy head and neck; very active and erratic in its movements

and Burma, extending also eastwards to Siam, Cochin-China, Java, and Borneo, this common Flycatcher is divided into several races. We are concerned only with two of these, which breed in the Himalayas and other hill ranges from 3000 to 8000 feet and are locally migratory, moving down into the plains after the breeding Puniab, United Provinces, Central Provinces, and the Bombay Presidency as far as Northern Kanara. It is only a straggler in the dry and more open plains of the North-west. In the Nilgiris and Travancore ranges it is replaced by the more richly-coloured typical race, also found in Ceylon.

The Brown Flycatcher (Alseonax latirostris), a small brown and

white species with a spotted breast, will catch the eye of anyone who knows the English Spotted Flycatcher, which it much resembles in habits and appearance. It is found throughout the whole of India except the Punjab plains, North-west Frontier Province, Sind, and Raiputana, being known to breed at low elevations in the Himalayas,

in the Vindhyan Hills, and North Kanara.

Habits, etc.-On its breeding grounds this Flycatcher is a bird of heavy forest, preferring those ravines and hill-sides where the age and the size of the trees provide wide shady arcades chequered with occasional patches of sunlight; in such places as it hawks insects in the air it flits incessantly from bough to bough, now catching the gleams of sunlight, now hidden in the gloom, eternally restless. eternally cheerful. Its call or song is a long, loud, clear trill, che-tut-tut-teee or wit-tweet-chitat-chitat, which sounds through the glades, occasionally becoming harsher and louder with something in it of the "stone on ice" note of the common Indian Nightiar. though rather hurried and different in tone; or it might be described as tyu-jit followed by a prolonged twittering note. Except when in family parties after breeding it is solitary in disposition, though one or two individuals invariably accompany the mixed hunting parties of small birds which are such a feature of the hill jungles.

The breeding season lasts from April to June. The nest is a most charming little structure of bright green mosses, lichens, and cobwebs, in shape half a cone or quarter of a sphere, and it is applied to the perpendicular side of a tree-trunk or rock on which there is but occasionally moss roots are used. It is placed at all heights from

The clutch consists of three or four eggs.

The egg is a moderately broad oval, very blunt in shape with very little gloss. The ground-colour is white or dingy vellowish-white, and the markings consist of spots and blotches of grey and yellowish-

grey, the majority being collected in a zone round the larger end. In size the eggs average about 0.60 by 0.48 inches,

THE PARADISE FLYCATCHER

(Plate vii, Fig. 2, opposite page 144)

Description.-Length q inches, exclusive of the sharply-graduated tail: in older males the central pair of feathers form ribbon-like streamers up to 10 inches in length.

Adult male: Pure white; the head, neck and crest glossy bluish-

black; the upper parts faintly streaked with black, the wing- and

Female and young male: Head, neck and crest glossy bluishblack; a collar round the neck, chin, throat and upper breast dark ashy merging into white on the abdomen; remainder of upper parts,

wings and tail bright chestnut.

white under parts. Purely arboreal, active and lively,

The plumages of the male are not yet fully understood and individuals will be found in various stages intermediate to the extremes above described. A phase in which the long streamers and the upper parts are chestnut instead of white may be dimorphic Iris dark brown; bill and rim round the eye bright cobalt-blue;

The bill is flattened and swollen and fringed with coarse hairs. Field Identification.-Older males cannot be confused with any other species owing to the central pair of tail-feathers being elongated into ribbon-like streamers 10 inches long, white or chestnut in colour. These droop gracefully in rest or stream out behind the bird in flight. Females and younger males have a crested, glossy black head and bright chestnut upper parts, wings and tail, and ashy or

Afghanistan and Baluchistan, through India and Burma, and still farther eastwards. It is divided into several races, of which we are concerned with three. The typical race occurs throughout the Peninsula from the Western United Provinces to the Brahmanutra and southwards to Cape Comorin. The paler race, inhabiting Afghanistan, Turkestan, Kashmir, and the Himalayas to Eastern Nepal is known as T. p. leucogaster. A third race nicobarica, with the head, neck and breast ashy-grey and the cap and a short crest only black, is found in the Duars and Upper Assam, migrating in winter to the Nicobars and Andamans. T. p. ceylonensis in Ceylon

this common and widely-spread bird, but it is undoubtedly migratory

the long waving tail plumes recall the ornaments of the true Birds without a rival in India. If Paradise is the home of perfection,

there indeed must this bird find a place. In nature its beauty is enhanced by its surroundings; for it is a bird of pleasant groves and well-watered shady nullahs, where stray gleams of sunshine strike through the boughs, bringing into colour sprays of foliage and illuminating patches of the ground and throwing them into relief by contrast with mysterious shadows. In such a spot the Paradisa Flycatcher delights to dwell, perching on the sprays, and disappearing into the shady depths, now hidden from sight, now caught in the rays of sunshine as he flies across the intervening spaces. The long streamers give a curious effect to the flight; the bird appears to float softly along without particular volition or ability to direct its course, moving in a series of dreamy impulses; though the younger birds with short tails show themselves possessed of strong and decided flight. All food is taken on the wing, and that the bird is capable of speed and skill in the air is proved by the fact that dragon-flies are sometimes captured.

This species is purely arboreal, its feet being too short and weak for progress on the ground. It is a very lively and cheerful bird, incessantly on the move; males often flirt their tails about, opening and closing the feathers and making play with the long streamers. When sitting on a twig the carriage is very upright.

The ordinary call-note is harsh and disappointing, a sharp grating note; but the song is a low pleasant warble of distinct merit, though it is not very often heard.

The breeding season differs according to locality. In Northern India it lasts from April to June: in the south it is earlier, commencing about February. Probably more than one brood is raised.

The nest depends for protection on its position rather than on concealment; though at first sight it escapes notice by its ridiculous conspicuousness; it is too easy to see, the eve and brain are looking for something more difficult to find. It is a very neat and compactlybuilt cup, either shallow and rounded or a deep inverted cone; it is built of soft grass, scraps of leaf and moss, all very firmly plastered together with spiders' webs and studded with small cocoons and pieces of lichen; there is a neat lining of fine grass and hair, the whole forming a structure worthy in its beauty of the architect. It is placed on a twig or stem, growing at any angle or at any height from the ground from 5 to 40 feet. The branch of a tall mango tree in the plains, and a thick brier stem in the hills are favourite situations. Both sexes incubate, and the male may be seen on the nest with the long streamers drooping over the side. In different pairs the males may be found in every stage of plumage, as they commence to breed when a year old.

The eggs are in shape a rather long oval, somewhat pointed towards the small end, and they are usually dull and glossless.

The ground-colour varies from pale pinkish-white to a warm salmonpink and is more or less thickly spotted with rather bright brownishred spots which tend to form an irregular cap or zone at the broad end. A few tiny, pale, inky-purple blotches occur also about the broad end. The eggs resemble in miniature one of the types of egg laid by the Common King-Crow.

They measure about o 80 by o 60 inches.

THE BLACK-NAPED FLYCATCHER

(Plate ix, Fig. 1, opposite page 208)

Description.-Length 6 inches. Male: Head, neck and breast brilliant lilac-blue, a minute patch about the base of the bill, a large patch on the back of the head and a crescentic bar on the throat deep velvet-black : remainder of upper parts dark blue : wings and tail sooty-black, washed with dark blue; remainder of lower parts

Female and immature birds: Head, neck and breast dull ashyblue; remainder of upper parts, wings and tail dark ashy-brown; remainder of lower parts white.

Iris dark brown; bill dark blue, edges and tip black; leg

white.

plumbeous, claws horny, The bill is broad and flattened at the base and fringed with long hairs : legs weak.

Field Identification.-A slender, rather elongated bird of which the male is blue throughout except for the white abdomen. The blue of the head and neck is very brilliant and emphasised by the black velvet skull-cap, set well back, and the black crescent on the throat. The female lacks these velvet patches and is much browner, with only a wash of blue about the head and neck. Usually solitary,

Distribution.-A widely-distributed species, occurring in India, Ceylon, Assam, Burma, Yunnan, Siam, and Indo-China across to the Philippines. There are several races. The Indian race, H. a. styani, which also extends eastward to Hainan, occurs throughout the whole country except north-west of a line from Lucknow, Sehore, and Western Khandesh. It is largely confined to the various hill ranges, but apparently does not occur much over 4000 feet. A resident species with slight local movements.

Habits, etc.-This beautiful Flycatcher is found in well-wooded parts of the country where it frequents patches of thick jungle and

is particularly fond of shady nullahs overhung by lofty trees. It is also fond of bamboo jungle and may be found in open country in clumps of trees or in single trees near villages. It is usually solitary, flying from tree to tree, remaining a short time in each, capturing insects on the wing. Now and again it flits actively amongst the branches, spreading its tail after the fashion of a Fantail-Flycatcher. It never descends to the ground. The food consists of a variety of small insects and as it captures these it utters a sharp little call which resembles one of the calls of the Grey Tit. At times several individuals join the mixed hunting parties and travel with them through the trees.

The breeding season lasts from the latter half of April until August, most nests being found in June and early July. The season

is somewhat earlier in the north than in the south.

The nest is a deep little cup composed internally of fine grass stems well woven together. Externally it consists of rather coarser grass and vegetable fibres and it is practically coated with cobwebs by which numerous small white cocoons and tiny pieces of dry leaves and lichen are attached to the nest. Sometimes some green moss is mingled with the cocoons. It is very neat and rather massive in construction. The nest is usually placed in a slender fork of an outer branch of a tree at no great height from the ground or fastened to some pendant bamboo spray.

The clutch consists of two to four eggs, three being the usual number. The egg is a miniature of that of the Paradise Flycatcher. It is a moderately broad and very regular oval, slightly compressed towards the smaller end. The shell is very fine and smooth, with little or no gloss. The ground-colour varies from almost pure white to pale salmon-pink; the markings consist of minute specks or small spots of red or reddish-pink, varying much in intensity and mingled with a few small pale purple spots. As a rule the markings are most plentiful towards the larger end of the egg, tending to form a zone or can.

The egg measures about 0.69 by 0.53 inches.

THE WHITE-BROWED FANTAIL-FLYCATCHER

LEUCOCIRCA AUREOLA (Lesson)

Description.-Length 7 inches. Sexes alike, except that the female is rather browner above. Forehead and a very broad stripe above the eye white; remainder of head black, the feathers of the cheeks, chin and throat edged with white; remainder of upper plumage, wings and tail brown, the wing-coverts tipped with white, and all but the central pair of tail-feathers tipped with white, progressing

more broadly outwards, till the outermost feather is almost entirely white; sides of the breast black; remainder of lower plumage white, Iris brown; bill and legs black.

The bill is large and flat and fringed with long hairs. The tail

is very ample and rounded, spreading into a fan.

Field Identification.-Common throughout the plains. A small

black and white bird, with a charming bar of song, which pirouettes about the shady branches of trees incessantly fanning its tail. Distribution.—This Fantail-Flycatcher is found practically through-

out India, Ceylon, Assam, Burma and South-west Siam. In India it is found from the plains up to about 4000 feet in the Outer Himalayas. It is divided into races, of which we are concerned with two. The typical race is found throughout Northern India though it does not occur in Kashmir, the North-west Frontier Province or Baluchistan. The southern boundary is not well-defined but all birds from the Madras Presidency belong to the darker Cingalese race (L. a. compressirostris) in which the white tips to the tail-feathers are shorter and two central pairs are without white tips.

Mention must be made of two closely-allied species which are locally common. The White-throated Fantail (Leucocirca albicollis), lower parts, is found along the Outer Himalayas up to about 7000 feet from Murree on the west (and with a wide distribution east of our area). The White-spotted Fantail (Leucocirca pectoralis) is resident in Central and Southern India from Mount Aboo and Goona to the Palnis, being particularly well known in the Nilgiris. It is somewhat similar to the White-browed Fantail in appearance but may be distinguished by having a brown pectoral band across the white under parts. All are resident species though slight local movements

Habits, etc.-The various Fantail-Flycatchers are all very much alike in their habits and characteristics. The White-browed Fantail is a bird of open country, frequenting groves of trees in cultivation, gardens and roadside trees, being strictly arboreal, and only descending to the ground for occasional momentary visits. For liveliness and grace it is not to be surpassed. It is never still, and the whole livelong day it dances and pirouettes, filled with an inimitable joie-de-vivre. It flits amongst the leafy boughs of some giant mango tree with a short jerky flight, and where it settles there it postures; it turns from side to side with restive, jerky movements; like a ballet-dancer before her mirror it tries new steps and attitudes; down drop the wings, up jerks the head, and all the time the dainty round fan of the tail is opened and closed and flirted with all the coquetry and grace of a beauty of Andalusia. Never was bird better named; watch it for the first time and within the first few seconds the name of Fantail rises unbidden to the mind. Now and again the bird leaves the shelter of the brunches and launches into the air, seeming to tunnile, bent on suicide; a rapid snap at some tiny insect invisible to human eye, a awift recovery, and it has returned to the cool shelter of the leaves, and is once more bowing and dancing. Now and again the happy little dancer breaks into song, a few notes in a regular scale, which seem more a human melody than the song of a bird, and break off just as geopting memory he had been the source of their source, off just as geopting memory he had been the source of their source, and adveys stops in the same place), and with a sharp twittering note the bird is oft to another tree where the minute begins afresh.



Fig. 19-White-browed Fantail-Flycatcher (& nat. size)

Amongst the other attractions of this dainty bird is its boldenes; song and dance go on in spite of human presence, and I have seen one fly down and snap an insect off the shoulder of a servant who was talking to me. The food consists entirely of insects, mostly of the minutest size, and throughout the whole of the bird's movements can be heard the snapping of its beak as it feeds.

Eggs may be found from the end of February to the early part of August; though the majority will be found in March and July. Two broods are reared, and this often from the same nest.

The nest is a most beautiful structure. It is a tiny cup, small, even for the size of the bird, and is attached to the upper surface of a twig or small branch, often at the junction of a fork. Viewed from the ground it has much the appearance of a small horner's nest.

It is made of fine fibres and grasses closely welded and bound with colwebs and sometimes studded with small cocons or spiders' egg-bags. There is a neat lining of fine grass stems. It is built at any height from 4 to 4 feet from the ground. Even in the neat the bird is reatless, often turning about, spreading her tail, or flying off for a minute or two. The made remains very faintfully in the vicinity.

THE WHITE-BROWED FANTAIL-FLYCATCHER 133

and without the least hesitation launches out to attack passing Crows or other possible enemies.

The eggs vary from two to four in number, while three is the usual clutch. They are moderately bread ovals compressed towards the small end. The ground-colour varies from pure white to very pale yellowish-brown or dings cream colour; and the markings are generally largely confined to a broad irregular zone near the large end of greyish-brown specks and spots, with secondary markings of neutral tint and pale grey or faint inky-purple. They are rather like ministure Shirkes' evens.

They measure about 0.66 by 0.51 inches.

THE GREAT GREY SHRIKE

Description.—Length 10 inches. Sexes alike. A very broad band from the heak through the eye black; upper plumage bluish-grey, merging into white over the wings; wings black, variegated with grey and white; tail black, the feathers growing increasingly white outwards; the whole lower plumage white.

Beak strong and hooked, with a deep notch at the tip of the upper mandible; tail rather long and graduated.

Field Identification.—Plains of Continental India. A grey and white bird with a heavy head marked with a conspicuous black band through the eye and with much black in the wings and tail; solitary or in pairs, in open country sitting on the tops of large bushes.

Distribution.—The Great Grey Shrike in various races has a very wide distribution through Europe, Africa, Asia, and Northern America. In Northern India it is represented by a resident form named L. e. lattera, which is common and generally distributed. It is found from coughly the line of the Indus and from the foot of the Himalayas to the Rajmahal Hills, Manbhum and Lohardaga in Western Bengal, southwards to Belgaum and Chanda. It is not found in the hill ranges.

Habiti, etc.—This Shrike is a ramular species to open one per preferring the more barren stretches of semi-desert country or mide open plains to cultivation, though it is found also in the latery Forest areas it avoids. It is found solutary or in pairs and latery conspicuous from its white, black and grey plunage and its habit of perching on the tops of bushes and small trees. It captures most of its food on the ground, leaving its vantage-point from time to time to fly down after a toolhome morael and in returning to the perch it flies low over the ground and then turns sharply up to settle; the flight is undulating but strong. Each bird or pair have their own heat and resent the intrusion of other species. The alarmnote is a harsh grating call, but the bird is capable of considerable powers of mimicry which serve it as a song. The food consists largely of beetles, crickets, lizards, and ants, and like other Shrikes this species has the habit of impaling surplus food on thorns to form a larder.

The breeding season extends from January to October, but the



Fig. 20-Great Grey Shrike (4 nat. size)

majority of eggs are laid in March or April. Two broads are sometimes reared.

The nest is a large bulky cup, solid and well constructed, and placed at moderate heights from 4 to 12 feet up in a thick bush or small tree, preferably thorny in character. It is composed of thorny twigs, coarse grass roots and the like, thickly lined with wool, fibres, cotton and other miscellaneous materials soft in character

The eggs vary in number from three to six. In shape they are a broad oval, somewhat pointed towards the smaller end. The texture is fine and close and there is a slight gloss. The groundcolour is delicate greenish-white, moderately blotched and spotted with various shades of brown and purple, the markings in nearly every case collecting into a wide zone round the broader end.

The eggs measure about 1.05 by 0.80 inches.

THE BAY-BACKED SHRIKE

(Plate vii, Fig. 1, opposite page 144)

Description,-Length 7 inches. Sexes alike. A broad band through the eve joined by a broad band across the base of the beak black: crown and upper neck grey, divided from the black by a whitish area; back and shoulders deep chestnut-maroon; rump white; wings black, with a white patch at the base of the outer flight-feathers; tail black with much white on the outer feathers;

Iris dark brown : bill and legs black.

The bill has a notch at the tip of the upper mandible; tail rather

Field Identification .- Common in cultivation; a small bird with a longish tail, broad grey and white head with heavy black marking, maroon back and black and white tail, the markings sharply defined and conspicuous; perches in exposed positions.

Distribution.—This Shrike is a purely Asiatic species, occurring from the west in Afghanistan and Baluchistan right across the whole Peninsula of India to Darbhanga, the Rajmahal Hills and Midnapur. It occurs in the Himalayas, but sparingly at heights up to 6000 feet, extending often far into the valleys as in Chitral. In the south it reaches Cape Comorin but it avoids the rain areas of the south-west. In portions of its range it is migratory, but for the most part it is a

Habits, etc.—This charming little Shrike is a bird of open country and cultivation with groves of trees, and it avoids both desert country and thick jungle. It perches on telegraph-wires and the lower boughs spied, it flies down to secure it, and after a meal upon the ground returns to its perch. It has a fixed territory, and seldom stirs far from its established perch. The food consists of insects, caterpillars, beetles, and the like

The ordinary call is a harsh churring note, but the bird has a pleasant little warbling song and is something of a mimic, imitating

The breeding season lasts from March to September, and it is being neatly plastered with cobwebs; it is lined, as a rule, with fine grass. The situation chosen for the nest is in the fork of a small tree, at heights usually about 6 to 10 feet from the ground. The nest is seldom well concealed, and though the bird generally comes close to an intruder and feigns readiness to attack, its attention is easily distracted by the sight of a caterpillar or other succulum morsel.

The clutch consists normally of four eggs, but as many as as, may be found. The eggs are very typical of the genus, broad rather blunt ovals, fine in texture with a slight gloss. The ground-coding is dull white integed with stone, greenish or grey; or ear the middle of the egg towards the broad end is a wide, conspicuous but broad and irregular zone of feeble spots and blotches of pale yellowish-brown and pale like, a few of these specks and freedlings being also dotted about the rest of the surface of the ear.

The eggs measure about 0.83 by 0.66 inches.

THE BROWN SHRIKE

LANTIS CRISTATUS Linnous

Description.—Length 7 inches. Sexes alike. Upper plumage reddish-brown, brighter on the crown and nape; a faint white line over and a broad blackish line through the eye ending with the earcoverts; wings dark brown, the feathers inargined with rufous; tall reddish-brown with pale tips to the feathers; lower plumage fulvous, whiter on the throat and belly and usually with the breast and flanks barred finely with black.

Iris brown; bill horny-brown, paler at gape and base of lower mandible; legs bluish-grey, claws brown.

The bill has a notch at the tip of the upper mandible; tail fairly

Field Identification.—A typical Shrike, reddish-brown above with a dark line through the eye and fulvous white below. Found sitting on bushes and fences in open country and the possessor of a very harsh voice.

Distribution.—This Shrike breeds over a great part of Central Asia and Siberia and Northern China and in winter migrates south to North-east Africa and southern Asia generally. We are concerned with two races. The typical race winters in India cast of a line from Cawnpore to Mhow and also in Ceylon and Burma. The Turkestan race L. e. phoemicarides which is more brightly coloured and has a race L. e. great the control of th

A very similar species is the Pale-brown Shrike (Lanius isabellinus)

which is a common winter visitor to the more barren areas of Northwest India. The upper parts are sandy-brown and there is a small white patch at the base of the wing-quills.

Habiti, etc.—This Shrike may be found in the cold weather in every type of country ranging from cultivation and day send to mixed hambon jumple to the fringes of forest and often for considerable datances within forest where cart-racks and clearings encourage it to enter. In such terrain the bird is found singly, sitting on a telegraphwire or a fence or a bush or small tree from which it keeps a keen lookout for its insect prey, launching out to capture is either in the air or on the ground. It is apt to be sky and difficult to approach and is always an active bird except when sheltering from the heat of the day.

The voice is singularly harsh, chr-r-r-ri, comparable with but easily distinguished from the call of the Rufous-backed Shrike.

This species is one of the earliest to arrive and one of the latest to depart of the winter visitors to India. The first arrivals may be noted at the end of August, even as far south as Ceylon, and some birds wait into May. A few non-breeding birds also seem to linger in the plains throughout the hot weather.

In Baluchistan the race L. c. phoenicurvider breeds in May and June in a zone between 5000 and 7000 feet. The nest is a massive cup of the usual Shrike type built of grass and bents and lined with seeddown, wool and scraps of cloth. They are placed in trees or more usually in low thorn bushes.

The clutch consists of four to six eggs.

The eggs are rather variable in shape, some being long owals and others more broad. The ground-colour varies from pale cream to warm salmon-pink or less commonly pale stone-colour or various shades of pale greenish. The markings are apots and blotches, mostly in a zone round the broad end, and they vary also according to the ground-colour from chestuat red to grey-brown and olive-brown with secondary markings of laxender and grey.

The egg measures about 0.75 by 0.65 inches.

THE RUFOUS-BACKED SHRIKE

ANIUS SCHACH Linnæus

 Description.—Length 10 inches. Sexes alike. Forehead and a broad band through the eye black; crown to the centre of the backe clear pale grey merging on the shoulders and runp into bright rufous; wings black with often a small white patch at the base of the outer flight-feathers; tail black and brown, the feathers tipped with rufous; the whole of the lower plumage white, washed with rufous on the flanks and vent.

A notch at the tip of the upper mandible; tail rather long and

Field Identification.—Perches conspicuously in open country slender build with heavy head and long tail, conspicuous black mark through eye, grey back with rufous edging, dark wings and tail and pale under parts very distinctive; distinguish from Baybacked Shrike by larger size, less black on face, and grey not maroon hack.

Distribution.-Lanius schach is a common and widely-distributed form of Shrike which occurs throughout India to China, and is divided into several races. Four of these occur within our area



Fig. 21-Head of Rufous-backed Shrike

notus, with pale grey upper parts and much rufous on the lower back and scapulars. which breeds in Turkestan, Gilgit, Kashmir, the Outer Western Himalayas, North-Frontier Province. Baluchistan, Sind and the sular India. L. s. nepalensis, with the upper parts dark

bluish-slate and the rufous confined to the rump, breeds in Tibet, and is a common winter visitor to the Nepal Valley and the Outer Eastern Himalayas. L. s. tephronotus, breeding in Suru and Lahul, and visiting Upper India in winter, is intermediate between those two races. L. s. caniceps, very similar to erythronotus but with less rufous on the upper parts, is resident in Central and Southern India and Ceylon, breeding abundantly in the hill ranges of the south-west. The Tibetan and Lahul races breed up to 10,000 to 12.000 feet, and the other races up to 7000 to 8000 feet.

A species of similar type, but at once recognised by the black head, is the Black-headed Shrike (Lanius nasutus) which is found in some numbers throughout the north-eastern quarter of India from Kumaon down to Nagpur and Vizagapatam district, breeding locally in parts of this area.

Habits, etc.-This bird is a typical Shrike, avoiding both forest areas and desert, and preferring fairly open ground about cultivation where a conspicuous perch on top of a bush or tree gives it a view all around. The southern form, caniceps, is apparently strictly resident, but the northern races are largely migrants, and their movements remain to be worked out, the situation being obscured by the fact that in some areas a proportion of individuals are resident and winter where they breed. This Shrike has the ferocity and boldness which is a characteristic of the larger members of the genus. It sits up on its perch motionless, its sharp eyes watching the ground intently for moving life, cricket or mouse, grasshopper or newly-fledged bird, and all alike succumb to the sudden dash and the strong-hooked beak. And its hunting never stops, for even if its voracious appetite is satisfied it has the family habit of maintaining a "larder" in which the surplus prey is stuck on to thorns. It is this habit which has given to Shrikes the popular name of "Butcher-bird." Small birds and mammals, bumble-bees, grasshoppers, dragon-flies, beetles, butterflies, and the like may all be found firmly lodged in a fayourite tree, often eight or ten of them together. On occasions, when feeding, the Shrike holds its food up in one foot after the fashion of a Parrot.

The ordinary call-note is harsh and scolding, gerlek-gerlek or julek-julek, followed by a yapping yaon-yaon. The song is short and pleasant but not often heard, while the bird is an excellent mimic, often reeling off a regular repertory of other birds' notes.

The breeding season is somewhat irregular. Nests may be found in different areas from February to August, and probably more than one brood is raised; but most nests will be found from April to July whatever the locality.

The nest is a large, massive cup, sometimes neat and well built, medley of materials, twigs, roots, bents, grass, rags, and lumps of but often there is not much choice of site in the barren hill-sides

The clutch consists of three to six eggs.

In appearance they are typical of the genus, broad heavy eggs, with very little gloss. The ground-colour is a delicate greenishwhite, in some eggs pale stone-colour or creamy; the markings consist of small specks and larger blotches of brown or reddishare never very thickly distributed and generally tend to form a zone

They measure about 0.92 by 0.70 inches.

THE PIED-SHRIKE

HEMIPUS PICATUS (Sykes)

Description.—Length; inches. Male: Top and sides of the head and neck and the back glossy black, the feathers of the rump breadly tipped with white; wings black, a white line running through the centre of the closed wing; tail black, all but the middle feather breadly tipped with white, the whole outer edge of the outer feather white; cheeds and sides of the neck white, produced to form an indistinct half-collar; lower plumage pale vinaccous-grey shading into white on the chis nad under the tail.

Female: Similar to the male but the black is replaced by sooty-

Iris yellowish-brown; bill black; legs blackish-brown.

The bill is broad and flattened like that of a Flycatcher.

Field Identification.—A small black and white or brown, black
and white bird found in parties in trees, hopping about the branches
like Woodshrikes or flying into the air to catch insects like Flycatchers.

Largely confined to hill jungle

Ditribution.—The typical race as described above is found in Saugor district; along the west coast of Peninsular India from Saugor district; along the west coast of Peninsular India from Saugorias to the Travancore Hills; in parts of the Eastern Chats; in Lower Bengal and Lower Assam and into Lower Burma and Tenasserim. It extends also further east to Sumatra and Borneo. It occurs from sec to about focor feet.

In the Sub-Himalayan ranges up to 5000 feet from Simila (very rare) eastwards, in Upper Assam and Upper Burna to Northern Yunnan and North Siam it is replaced by H. p. capitalis in which the male differs in having the best and runny amonly-brown instead of glossy black. The frenales are indistinguishable. There is also an sistand resc. P. p. Eggel, in Cytolion. In this the male and feenale and single the second of the second similar to the second similar to

Habits, etc.—The Pied-Shrike is a strictly arboral bird. It is found in many types of tree-growth, in lofty trees, in the fringe of evergreen jungle, in the foliage of secondary growth in thin jungle and even on eccasion in roadade bushes and mere serule. Except in the breeding season it is found in small parties of about half a found of the season of the found in the mixed bushing parties. In babits these birds resemble to the season of the season of the shrikes and between the latter and the true Shrikes they form a very definite connecting link. Like the Woodshrikes the members of a party follow each other from tree to tree, searching the twigs and leaves for the insect life which forms their food. Like the Flycatchers they capture winged prey by launching graceful sallies after it into the air, turning and twisting in mid-air with great agility. The nost frequently uttered, are a little trill—esh-ri-ri, whi-ri-ri, whi-ri-ri, the end of the present and the sallies are the sallies are the sallies are the sallies are the sallies and the sallies are the s

The breeding season of the typical form is from March to May in Western India, but that of the brown-backed race optimis is apparently somewhat later, about May and June. The nest is a very leastful successful with colored so and pieces of grey lichen and moss, taken apparently from the tree on which it is built, so that it corresponds almost exactly with the branch or fork in which it is placed. This is usually at a considerable height from the ground and the branch chosen is often a bare one. In shape the nest is a shallow cup with a cavity 1 inches across and 1 inch deep, and it is so small for the size of the bird that when the latter is sitting the whole of the tail and the body down to the lower part of the breast is visible to the observer below. The bird, in fact, merely appears to be sitting on a small lump of moss and lichen.

The nestlings have a remarkable habit of sitting motionless with their eyes shut and their heads raised together in the centre of the nest, so that they and the nest together appear to form a dead spur of the branch on which the nest is built.

The clutch consists of two or three eggs.

The eggs are very Shrike-like in appearance, rather elongated ovals somewhat obtuse at both ends and entirely devoid of gless. The ground-colour is a pale greenish or greyish-white, profusely blotched, apotted and streaked with darker and lighter shades of umber-brown and dull inky-purple. These markings are usually in a grone at one end. In some specimens the markings are sparse and small.

In size the eggs average about 0.65 by 0.5 inches.

THE COMMON WOOD-SHRIKE

TEPHRODORNIS PONDICERIANUS (Gmelin)
(Plate vii, Fig. 3, opposite page 144)

Description.—Length 6 inches. Sexes alike. The whole upper plumage ashy-brown, the feathers of the wings edged paler; tall, dark brown, the central pair of feathers tinged with ashy, the two outer pairs almost entirely white; a broad whitish streak over the eye, and a broad dark hand below it; lower plumage ashy, paler with the contraction.

Iris yellowish-brown; bill dark horn; legs dark plumbeous-brown. Field Identification.—Common plains species; arboreal, in parties; a quiet grey bird with a pale eyebrow and a dark band through the eye, and white outer feathers in the tail.

Distribution.—The Wood-Shrike is found almost throughout India, Burma, Ceylon, Siam, and Annam, and is divided into races. The typical race is found from the base of the Himalayas to Cape Comorin. and on the east to Burma; on the west it is replaced by T. p. pallidus. a paler bird, which is found from the line of the River Indus through the Punjab and Sind to about Kalka, Ambala, the Western United Provinces and Khandesh. It is a resident species.

A very similar but larger species, the Nepal Wood-Shrike (Tephrodornis gularis), is found in the Eastern Himalayas and has another race on the Western Ghats from Belgaum southwards. In the latter the adult has the upper parts a bluish-ash colour.

Habits, etc.-The Wood-Shrike is a very quiet, unobtrusive little of trees and searching the stems and leaves for insects and their larvæ. Occasionally it descends to the undergrowth and even to the trees preferred being those of gardens, hedgerows and cultivation, wayside trees and small groves. It is generally met with in pairs, but in winter small parties collect and hunt in company,

The males have a very sweet and distinctive call of several whistling notes, wheet wheet, followed by a quick repeated interrogative whi-whiwhi-tohi, besides which some low trills are uttered in the breeding

The breeding season lasts from February to June, but most eggs will be found in March and April. The nest is a very beautiful structure, and rather small for the size of the bird. It is a broad, shallow cup, composed of fine bents, fragments of bark and grass stems, bound together with silky fibres and smeared exteriorly with cobwebs, the whole being very compact and neat. The interior is lined with wool and hair. The nest is built in a small horizontal fork of a tree from 5 to 30 feet from the ground and is difficult to see until the bird betrays it.

The clutch consists of two or three eggs. They resemble the eggs of the true Shrikes and are broad, regular ovals, of fine texture, with very little gloss. The ground-colour is cream, stone, or pale greenish-white, spotted and blotched with yellowish- and reddishbrown; many of these markings are gathered into a conspicuous but ill-defined zone round the broad end, in which are intermingled clouds of pale and dingy purple.

The eggs measure about 0.75 by 0.61 inches.

Description.-Length o inches. Male: Upper plumage to the middle back, chin and throat glossy black; remainder of body plumage scarlet; wing black with a very broad band of scarlet running through it, and with large round scarlet spots on the later secondaries : tail scarlet, the central pair of feathers black.

Female: Forehead yellow, fading on to the crown; upper plumage deep grey; rump and upper tail-coverts olive-yellow; lower plumage vellow; wings blackish-brown, with a broad band of yellow running central pair of tail-feathers black; the next pair black with the end patch at their bases.

Iris brown; bill and legs black.

flocks which immediately attract attention by the scarlet and black plumage of the males and the yellow and dark plumage of the females. The larger size and oval spots on the secondaries distinguish it from

Distribution.-The Scarlet Minivet has a wide distribution through the Himalayas, part of Peninsular India, Assam, and Burma to China and Hainan, as a resident species, though it appears to move of which two concern us. The typical race is found throughout the Lower Himalayas, below about 6000 feet from the Sutley Valley eastwards. P. s. semiruber, with the central tail-feathers largely red, is found in Lower Bengal, Orissa, the Central Provinces, and the

Another similar species, the Orange Minivet (Pericrocotus flammeus), is common and resident along the forests of the Western Ghats from Khandesh to Cape Comorin, occurring also in the Shevaroy Hills and Ceylon. It is found up to 6000 feet. In this the male has the lower parts orange-red.

Habits, etc.-This Minivet keeps to well-wooded country, and is the breeding season it is found in small flocks which travel through the tops of the trees searching for insects, usually alone, but sometimes in company with other species of insectivorous birds. Like fashion, the red and yellow of the two sexes glinting in the sunlight, while their cheery pleasant calls still further enhance the pleasure of The breeding season of the Himalayan race is from the end of

an excrescence of the wood.

April to early June. The nest is a shallow, massive little cup composed of fine twice roots and grass-stems, bound together exteriorly with spiders' webs. and studded with lichens, mosses and scraps of bark. It is placed on a bough of a tree, and is well concealed, appearing to be merely

The clutch consists of two or three eggs. These are moderately broad ovals, fine in texture and with practically no gloss. The grounds colour is pale sea-green, and the markings consist of spots and blotches of dark brown and lavender.

They measure about 0.90 by 0.67 inches.

THE SHORT-BILLED MINIVET

Pericrocotus brevirostris (Vigors) (Plate xi, Fig. 3, opposite page 264)

Description.-Length 7 inches. Male: Upper plumage to the middle back, chin and throat glossy black; remainder of body plumage scarlet; wing black with a broad band of scarlet running through it; central tail-feathers black; the next pair black with the greater portion of the outer web scarlet: the others all scarlet with a black patch at their bases.

Female: Forehead greenish-vellow, fading on to the crown; upper plumage light grey tinged with olive; rump and upper tail-coverts olive-yellow; lower surface yellow; wing blackish-brown with a broad band of yellow running through it; central tail-feathers black; the next pair vellow with some black on the inner webs: the others all

Iris dark brown; bill and legs black.

The tail is long and very deeply graduated.

Field Identification.-Purely arboreal: found in flocks which attract attention by the scarlet and black plumage of the males and the yellow and dark plumage of the females. Distinguished from the Scarlet Minivet by the smaller size, by the greater amount of black in the tail, and by the absence of the scarlet (in female yellow) round spots on the secondaries.

Distribution.-The Short-billed Minivet has a wide distribution through Northern India, Assam, and Burma to Eastern China. It is divided into races, of which we are concerned with two. The typical race breeds between about 3000 and 10,000 feet on the Sufed Koh



1. Bay-backed Shrike. 2. Paradise Flycatcher. 3. Common Wood-Shrike. about | nat. size.)

and all along the Western Himalayas from Gilgit and Murrae to Nepal, moving in winter, from about November to the end of March, into the plains of the Punjab, Rajputana, United Provinces, Central Provinces, and Lower Bengal. From Sikkim eastwards to Assam and Northern Burma it is replaced by *P. b. affinis*, which is a more darklycoloured bird in both sexes.

The Rosy Minivet (*Pericrocotus roseus*) in which the colours of the male are rose-pink and brown is found throughout the Lower Himalayas, as far west as Hazara, and also locally in the Peninsula.

Habiti, etc.—Except when actually breeding the Short-billed Minivet is an essentially gregarous bird, living in family parties which join with others to form flocks that sometimes number as many as thirty or forty individuals. These are strictly arboral, frequenting the tops of trees and not descending even extractly arboral, the street of the street

The breeding season lasts from April to July. The nest is a shallow but massive little cup of fine twigs, bents and roots, matted with cohesels, and studded with lichens to resemble the twig on which it is placed. It is placed on a bough of a tree usually at a

The clutch consists of two to four eggs. They are moderately broad ovals of fine texture; the ground-colour is white tinged with cream or greenish, and the markings consist of blotches and spots of brownish-red, with secondary markings of grey and neutral tint.

The egg measures about 0.75 by 0.60 inches.

THE LITTLE MINIVET

PERICROCOTUS PEREGRINUS (Linnæus)
(Piate v, Fig. 5, opposite page 96)

Description.—Length 6 inches. Male: Entire upper surface grey except the rump which is flame coloured; wings blackishbrown with a slight central patch of fame-colour; tail long and deeply graduated, blackish-brown, all but the central pair of feathers broadly tripped with flame-colour; sides of the head, thin and throat blackish-grey; breast flame-colour, gradually paling into the white of the vent.

Female: Paler throughout; the whole lower plumage is white tinged with yellow.

Iris brown : bill and legs black.

Field Identification.—Plains bird; common in small parties, fluttering about trees; small with long tails, dull coloured with a conspicuous flame-coloured patch on the rump and wing, and in the males also on the breast.

Distribution.—The Little Minivet is found throughout India, Ceylon and Burma, extending on the east to Siam and Cochine China; it is divided into several races. This species is unusually susceptible to climatic and geographical influences. In Sind and the South-west Punjab it is a pale desert bird, P. p. pallibat. On the humid west coast from North Kanara to Travancer, P. p. made any tropical species. In Ceylon an island race, P. p. cevichai way approximates to another richly coloured race, P. p. evichai (with a paproximates to another richly coloured race, P. p. evichai (with a grey throat) in the Duars, Assam, and Burma. Whilst in the greater part of India the typical form, itself strictly speaking an intermediate, connects these variations, remaining unchanged through the immense area of the Peninsula from the Cauvery to the Sutlej, and on the edges of their range grading into them. A strictly resident species.

Another small species, the White-bellied Minivet (Pericrocotus erythropygius), is found practically throughout India, except the extreme north-west. The male is glossy black and white with a

red rump and a beautiful rosy flush on the breast.

Habits, etc.—This Minivet is a plains bird, and only ascends those leaser ranges whose elevation and character cause them scarcely to differ from the plains. It is, like other Minivets, a purely arboral species, frequenting trees in open but well-timbered country, particularly in the neighbourhood of cultivation; forests it avoids. Except large the contract of the

The breeding season of this species is very extended, lasting, according to locality, from March to September, earlier in the north than in Central India and the south. The net is a very beautiful little structure which is almost impossible to find, except by watching the birds, owing to its situation, size and character. It is a timy shallow cup, about two inches in diameter and one inch in depth, and is built in a horizontal fork or on a small bough of a tree usually at a considerable height from the ground. It is composed of very fine twiston or grass as stems, with sometimes also a few feathers, carefully

bound together with cobwebs and coated with scraps of bark, lichens and dead leaves, so that viewed from the ground it is virtually impossible to distinguish from an excrescence of the branch on which it is built; the cavity is sometimes lined with fine down and cobweb.

The normal clutch consists of three eggs.

In shape the egg is a rather blunt, broad oval, fine in texture and without gloss. The ground-colour is a pale delicate greenish-white or creamy-buff, and the markings consist of brownish-red specks, spots and blotches, always more numerous towards the large end where there is a tendency to form a irregular can.

They measure about 0.67 by 0.52 inches.

THE BLACK-HEADED CUCKOO-SHRIKE LALAGE SYKESI Strickland

Description.—Length 7 inches. Male: Entire head, neck, and upper breast deep black; upper plumage dark grey; wings black, the smaller coverts and inner flight-feathers grey or margined with grey and white; tail black, the outer feathers broadly tipped with white, the central pair entirely ash-grey; lower breast ashy-grey fading into the white of the rest of the lower plumage.

Female: Upper plumage asby-grey, most of the feathers faintly barred with paler and darker grey; wings dark sooty-brown, the smaller coverts and inner flight-feathers grey or margined with grey and white; tail as in male; lower plumage white, finely barred with black frience to the feathers event towards the tail.

Iris brownish-red; bill and legs black.

The feathers are very stiff, downy and loosely attached, recalling the plumage of Cuckoos and Doves. Tail graduated.

Field Identification.—Male: Grey above, white below with black head and neck and largely black wings and tail. Female: Ashy-grey with the lower parts barred black and white. An arboreal species found in small parties. In the breeding season remarkable for the whiteline are

Distribution.—Confined to India, Assam, and Ceylon. Distributed generally throughout India cocept nonth-west of a line through Kangra, Sambhar and Mount Abso. Occurs at all elevations up to rarely 7000 feet. Birds from Kangra have been separated as L. eximin on their darker colour. Evidently a local migrant, but the

Another species, the Large Cuckoo-Shrike (Graucalus javensis), length 10 to 12 inches, is found throughout India, with the exception of the Punjab plains, Sind and desert Rajputana. The plumage is

largely grey with more or less grey barring on the white lower parts. It keeps to the tops of trees and attracts attention by its loud, querulous and rather Parrot-like cry.

Habits, etc.—The Black-headed Cuckoo-Shrike is found in welltimbered open country rather than in heavy forest, and is very partial to large trees surrounding villages or the avenues of large trees which line so many of the roads of India. It also enters gardens and



Fig. 22—Black-Headed Cuckoo-Shrike (2 nat. size)

orchards and feeds along hedgerows. It never descends to the ground. Except in the breeding season this species is usually found in small parties which fly from tree to tree, slowly and carefully examining the foliage for the insects and larvæ which form its food. The search is continued from bough to bough until the tree has been thoroughly inspected when the flock flies off to another tree. It is usually a silent bird, but during the earlier part of the breeding season the male may frequently be heard repeating for minutes together his dead colou whisting notes. Each time that he flies from tree to tree the song is repeated. The flight is easy and somewhat undulating and the strokes of the wing fairly rapid. The breeding season in the greater part of the bird's range is

from June to August, but in the extreme south it is said to be somewhat

earlier, in April and May.

The nest is a very shallow rather broad cup of slight construction. It is made of thin twigs and roots and the exterior is lightly covered with spiders' webs. The situation chosen is on a branch of a tree, either in a fork or at the junction of the branch with the trunk, usually at a height of 10 to 20 feet from the ground.

The clutch consists of two or three eggs. The egg is a moderately broad oval, rather blunt at both ends. The shell is fine in texture and slightly glossy. The ground-colour is pale gerenish-white, thickly blotched and streaked throughout with rather pale brown. The markings tend to be most numerous towards the broad end.

The egg measures about o.85 by o.65 inches.

THE ASHY SWALLOW-SHRIKE ARTAMUS FUSCUS Vicillot

Description.—Length 7 inches. Sexes alike. Entire body plumage dula aby, greyer on the head and paler from the breast downwards, a blackish mark in front of the eye. Wings and tail deep blue-grey, the latter tipped with white; the longer upper tail-coverts white;

Iris dark brown; bill clear pale blue, brownish at tip; legs slate.

Bill curved, conical and pointed; tail short and square and the

Field Identification.—Social, found in flocks; a dull grey bird that looks like a large heavy Swallow, soaring continuously into the

air from a neigh and increasently uttering a harsh or

Distribution.—This interesting bird is found in the whose of indicates ast of a line drawn from about Simla to Godra in the Panch Mahals. It is a resident in the plains and foot-hills up to about 2000 feet, and in aummer ascenda the Himalaysa up to about 2000 feet. It is also found in Ceylon and eastwards through Burma towards Siam and

Habit, etc.—The Swallow-Shrike is a gregarious bird, breeding in colonies and spending its time in large flocks which feed and rest together. It is specialised for the purpose of feeding on the wing, and in the air looks like a large grey Swallow, though easily distinguished by the constantly uttered barsh cry and by the slowsailine flight. The flocks settle in rows on some folty bough or the scaling flight. top of a tall bamboo and thence sally into the air in pursuit of passing insects; they fly round in a wide circle, though seldom for more than a minute or two at a time, and then return to the perch where they huddle closely together. During the heat of the day they are quiescent, and they feed mostly in the early mornings and late evenings, being partly crepuscular in their habits. They are very bold when breeding, and attack passing Crows and Hawks, and

at times even swoop at the climber who essays to take their nest They never visit the ground. The breeding season is in April, May and June. The nest is usually placed on the top of broken projecting stumps of branches or occasionally in holes; a favourite site is in palm trees, on the



Fig. 23-Ashy Swallow-Shrike (1 nat. size)

bases of the leaves or the rough projections whence leaves have fallen. The site is usually 30 to 40 feet from the ground.

The nest is a shallow, loose cup of fine grass, roots, fibres, feathers and similar miscellaneous materials, with, as a rule, no definite lining. The clutch consists of two to four eggs, which rather resemble those of the Shrikes. In shape the egg is a rather narrow oval, a good deal pointed towards one end, fine in texture and with a slight gloss. The ground-colour varies from white to buffy-cream colour. The markings which tend to collect in a zone round the broad end consist of spots and clouds of reddish-brown and deep purple-brown, with secondary markings of lavender and purplish-grey.

In size the eggs average about 0.95 by 0.65 inches.

THE KING-CROW

DICRURUS MACROCERCUS Vieillot

Description.-Length 13 inches, including the tail 6 inches long. Sexes alike. The whole plumage black, glossed with blue; a small white spot sometimes present at the base of the bill,

Iris red; bill and legs black,

The tail is long and deeply forked, the outer feathers curling slightly upwards at the ends.

Field Identification. One of the commonest birds throughout India, perching on trees and telegraph-wires; noisy and pugnacious;

deep black with a long, gracefully-forked tail. Distribution.—The common Black Drongo or King-Crow is a

widely-spread species occurring throughout India and Ceylon and eastwards to China and Java. In this wide range it is divided into several sub-species, based entirely on the variations in size and relative lengths of wings and tails, so that individual specimens are not easily identified. In India there is a progressive diminution in size as one travels southwards. The longest-winged and largesttailed race, D. m. albirictus, is found throughout northern India from the Lower Himalayas roughly to the southern fringe of the Indo-Gangetic plain. All birds south of that area to Cape Comorin may be treated as one form, D. m. peninsularis, whilst the smallest race from Cevlon is known as D. m. minor. A resident species with some local migrations. Found from sea-level up to about 2000 feet.

The much smaller and more highly burnished Bronzed Drongo (Chaptia anea), and the heavily-built Hair-crested Drongo (Chibia hottentotta), with an almost square tail and a tuft of long hairs springing from the forehead, share a somewhat similar distribution along the Outer Himalayas, near the eastern border of the Central

Habits, etc .- In the King-Crow we have another of the most familiar birds of India, attracting attention by its graceful shape, its fearlessness and pugnacity, its abundance, and the wideness of its distribution. This bird has no connection with the family of Crows; it belongs to a very highly-specialised and distinct family, the Dicruridae, which appears to occupy a position between the Shrikes and the Birds of Paradise. The familiar name is due partly to the colour "as black as a Crow" and partly to its pugnacity and fearlessness in defence of the nest, which leads it to attack all predaceous enemies. It is a common sight to see a pair of these birds chasing a Crow through the air, stooping at and around it with a mastery of flight and power, like that of a Falcon, accompanying the performance with a series of angry calls that attract the attention of the least observant; verily

it is King of the Crows, who, otherwise, are a match for bird and mammal, even including the arch-mammal man. And if necessity arises it does not hesitate to attack Eagle, Falcon or Hawk with the same courage.

But the King-Crow is not a mere bully: harmless species it does not molest, and it has long been noticed that a tree containing a King-Crow's nest usually also contains the nest of a Golden Oriole, a Red Turtle-Dove, or some other equally gentle bird, and



Fro. 24-King-Crow († nat. size)

it is difficult to resist the conclusion that these species recognise the fact that the presence of the King-Crow's nest above their heads is a guarantee of protection from all ordinary marguders.

The King-Crow is found in every type of country, though it certainly prefer the neighbourhood of open cultivation. Its chief need is a vantage-point on which to perch, swaying and flicking its long tail, and watching ceaselessly for every innect that stirs in the air or on the ground. It seldom perches on buildings, but prefers a bare dead bough at the summit of a tree or a telegraph-wire. One may travel for days on an Indian railway and the King-Crows detectal slower the wires will be one of the unchanging sights of the

journey. And from the chosen perch they are inceasually flying either to expute an insect on the wing, returning to early on the perch, or down to the ground to settle there and est one sluggish quarry. Their whole build, however, precludes any progression on the ground or about the branches of a tree and their movements are entirely serial. Herds of grazing castle are generally accompanied by one or more of these birds which travel with them, perching on the back of no of the animals and hawking the grasshoppers disturbed by the progress of the herd through the grass. The bird also attends polupting operations, perching on small busiles and cloid of earth in the vicinity and watching for larve printer, probling Myanhas and Hoopeas at the event is somewhat of a printer, probling Myanhas and Hoopeas at they even is somewhat of a printer, probling Myanhas and Hoopeas at they even is somewhat of a decrease of the printer problem of the ground. The food consists entirely of invest, deacon-files, crickets, grasshoppers, moths, bugs, etc., and their larve.

The call-notes are loud and cheerful though somewhat metallic in tone. The Punjabi names of Kalikeet and Kalikalikhi are onomatopetic and fairly represent the more common calls, but it is impossible to represent the evident fury imported into the bird's tones when it is driving an intruder from the vicinity of the nest.

The song is short but not pleasing. While undoubtedly in the main a resident species, the King-Crow lis certainly migratory to some extent; but, as is almost inevitable, with so abundant a species in which a large proportion of individuals are sedentary, the extent and meaning of these movements is difficult to observe and has not yet been worked out.

The breeding season extends from April to August. The nest is a broad, shallow cup of tiny twigs and fine grass stems and roots neatly and strongly sowen together and exteriorly bound round with a good deal of cobweb; some nests are lined with fine grass horse-bair or roots. The side of the nest is thicker than the bottom through which the eggs are often visible against the sky. It is suppended in a horizontal fork of a tree, for the most part at a considerable height from the ground and a little way in from the extremity of the chosen bough. A second clutch of eggs is often laid in a next that has been robbet.

Three to five eggs are laid, but the usual clutch consists of four. The egg is a rather long only, somewhat pointed towards the smaller end; the shell is fine and rather fragile and usually without gloss. The coloration is very variable. Some eggs are pure white and spotless; others are white with fine black spots; while a third type is pale salmon-colour spotted with rich brownish-red, blackshand purplish-brown; there are infinite variations on these types, but the markings are newer very large or densety distributed.

The egg measures about 1.05 by 0.75 inches.

THE INDIAN GREY DRONGO

DICRURUS LONGICAUDATUS Jerdon

Description.—Length 12 inches, including tail 6 inches. Sexes alike. The whole upper plumage indigo with a high gloss; the lower plumage dark grey; a blackish patch in front of the eye.

Iris red; bill and legs black.

Tail long, slender and widely forked at the end, the outer feathers curling upwards.

Field Identification.- In the field appears black, with a long. slender forked tail, and is only distinguished from the King-Crow with difficulty, by the more slender build, unless close enough for the lighter duller colour of the under parts to be recognisable.

Distribution.—The Grey Drongo is a very widely-spread species in India, Burma, Ceylon, and still farther east, and has been divided into a number of races based on differences of measurements and the comparative darkness or lightness of the plumage, but several of these are probably unnecessary. D. I. longicaudatus is found, as a summer visitor from March to September, in the Himalayas from Hazara to somewhere in Assam being replaced in Lower Burma and the Malay Peninsula by D. I. intermedius. D. I. longicaudatus is found also as a winter visitor throughout the greater part of Continental and Peninsular India, avoiding Sind, Punjab, Guzerat and portions of Raiputana. It also reaches Ceylon in winter.

The Grey Drongo is particularly a hill species, for the most part breeding at altitudes between 4000 and 7000 feet, but also lower and

up to 10,000 feet.

The White-bellied Drongo (Dicrurus cærulescens) is widely distributed and locally common throughout the greater part of India, except in the Punjab, Sind, and Rajputana. The brownish-grey throat and breast and white belly distinguish it easily from all other species, though it must be remembered that the young of the King-Crow have the lower abdomen largely marked with white.

Habits, etc.-The Grey Drongo is typically a resident of wellwooded hills, preferring those of more open character to the neighbourhood of dense forest. It has the same habits as the Black Drongo, perching on high trees and hawking insects in their vicinity. But as its favourite tree is usually on the side of some afforested mountain-slope it normally flies at greater heights from the ground than its Black cousin, and seldom descends actually to the ground. It is a magnificent flier, turning and twisting with extreme speed and skill, and it has the pugnacity of the family, hunting larger birds from the vicinity of its nest with great courage.

It is usually found singly or in pairs, but the pairs do not object. to the vicinity of others of their own species, and several birds often collect together to mob a common foe or to work some desirable feeding ground. During migration small parties travel together.

The Grey Drongo has much the same range of musical calls as the Black Drongo, some harsh and scolding, others sweet and cheerful; a common call may be given as drangh-gip or gip-gipdrangh. There is a short but pleasant song, and in addition the bird is something of a mimic.

The food consists entirely of insects, the majority of which are taken on the wing. A bird has been seen to settle by a bec-hive and deliberately pick up and eat the bees.

The breeding season is in May and June.

The nest is a strong shallow cup, placed in a horizontal fork of a tree at any height from 12 feet upwards, and often quite inaccessible. It is built of fine grass stems, slender twigs and roots, plastered with cobwebs and lichens and lined with finer grasses and hairs. The bottom of the nest is usually thin enough for the eggs to be visible through it against the sky.

The egg is a moderately broad oval, fine in texture and without gloss. There are two main types of coloration. The first is pinkishsalmon colour, streaked, blotched, and clouded with reddish-pink of a darker shade. In the other the ground-colour is pale pinkish-white boldly blotched and spotted, mostly in a zone round the broad end, with brownish-red and faint inky-purple.

THE LARGE RACKET-TAILED DRONGO

Description.-Length to end of central tail-feathers 14 inches; outer tail - feathers up to 13 inches extra. Sexes alike. Entire plumage black, glossed with blue except on the inner webs of the wing-quills, throat and lower abdomen; some white spots under

An erect crest of long hackle-like plumes on the forehead falling backwards over the nape; the outer pair of tail-feathers greatly elongated, the middle portion of the shaft webless, the terminal four inches having the outer web very narrow and the inner web broad and twisted upwards; white in the shaft reverses the apparent position of these webs.

Field Identification.-A glossy black bird, immediately identified by the plumed crest and the extraordinary development of the outer tail-feathers into rackets on the end of the wire-like shafts.

Distribution.-Throughout the greater part of India, Burma, and Cevlon to Siam and the Malay Peninsula. It has been divided into

a number of races differing in the size and quality of the crest and tail. We are concerned with two only. D. p. grandis breeds along the Himalayas from Kumaon to Eastern Assam and through to Yunnan from the plains up to 3000 and occasionally 4000 feet; it extends east of a line roughly from Kumaon to Mount Aboo southwards to Sambalpur, Raipur and the northern reaches of the Godavari River. D. b. malabaricus, an altogether smaller bird, occupies the rest of India south of the above range. It is a resident species.

the Lesser Racket-tailed Drongo (Bhringa remifer) of the Eastern Himalayas, Assam and Burma which has the rackets fully webbed on both sides, lacks the crest and has the feathers of the forehead produced in a curious flat pad over the base of the

beak.

Habits, etc.-This wonderful Drongo, known familiarly as the Bhimraj, is a forest species, inhabiting by preference the densest and dampest of the Indian forests, though it is also found in any well-wooded country and even comes into gardens, It appears to have a special partiality for

Fig. 25-Large Racket-tailed bamboo jungle and is entirely arboreal in its habits. It is more sociable than other Drongos, often going about in parties of

four and five. These parties appear to wander a good deal in search of food, flying from tree to tree, swooping at insects on the wing or capturing them from the branches. The bird also hunts from a fixed station, returning again and again to the same tree. Its food consists of a variety of insects, wasps, beetles, butterflies, locusts and their larvæ, and it is accustomed to devour quantities of bees,

The call is very striking, beginning with a harsh chuckle and ending in a peculiar metallic creaking cry, expressed by the syllables tse-rung, tse-rung. It has in addition a number of musical calls and whistles and is justly celebrated as a very fine mimic, imitating all the birds of the locality. It makes a delightful pet, fearless and most amusing with its imitations of noises about the house and garden.

The breeding season is from March to May, and, when nesting, the bird is accustomed to harry passing birds of prev. The nest is the usual cup-cradle of the Drongos, slung in the fork of a small outside branch of a tree, usually at a great height from the ground. It is composed of fine twigs and grass stems well interlaced and firmly attached to the fork and strengthened with cobwebs; the outside is usually decorated with lichen, moss and scraps

of bark. The clutch consists of three or four eggs. They are rather long and pointed, fine in texture and with little gloss. The groundcolour varies from white to rich cream, marked with blotches, spots and specks of reddish-brown or purple and secondary markings of lavender and pale neutral tint. The markings tend to collect towards

The egg measures about 1.15 by 0.82 inches.

THE INDIAN GREAT REED-WARBLER

Description.-Length 7 inches. Sexes alike. Upper plumage olive-brown; an indistinct fulvous buff line over the eve; wings and tail dark brown, washed with olive-brown; chin and throat creamy-white; remainder of lower plumage fulvous buff, paler about

In worn plumage the upper parts become much greyer and the Iris vellow-brown; bill blackish-brown, base of lower mandible

fleshy-livid; legs steely plumbeous. Inside of mouth salmon-red.

Field Identification.-One of the largest of the Warblers. A dull olive-brown bird with fulvous under parts, chiefly remarkable in the hand for the rich salmon-red mouth. Normally found in dense

reed-beds where it is very noisy. Distribution.-This species is widely distributed from Egypt and Palestine through Western and Central Asia to India, Ceylon and Burma. It is divided into races. Indian birds belong to the race A. s. brunnescens which also breeds in Transcaspia, Persia and Turkestan. In our area it is known to breed in suitable jheels in Sind, Baluchistan, North-west Frontier Province, Kashmir, the Punjah and the United Provinces, and possibly also in Khandesh and Bombay. It is largely migratory and is found in winter or on passage throughout India. A smaller and more richly coloured race, A. meridionalit, is resident in Cevlon.

Habits, etc.—The Great Reed-Warbler is normally a bird of dense reed-beds though it may also be found in any other thick cover over water, such as the mangrove swamps along the tidal creeks of the Bombay and Sind coasts. In such places it is more often heard than seen. The call and alarm note is a harsh chack chack while the song is very distinctive, never forgotten when once heard It is very loud and variable, hard and metallic for the most part, but also interspersed with pleasant bars. But the essential burden of the refrain, constantly recurring, is the loud karra karra karreet karreet karreet or prit prit pritik which suddenly bursts out of a reed-bed with astonishing vehemence. It is to be heard everywhere in the lakes of the Kashmir Vale even amongst the house-boats by the Dal Darwaza in Srinagar. The singer himself usually keeps out of sight, climbing about the reed stems and the heaps of debris a few inches above the surface of the water. Although such a skulker the bird is not particularly shy and allows a close approach, while at intervals it climbs to the tops of the reeds or even into neighbouring trees, singing a few bars of the song from such a vantage-point before returning to the shady depths of the reed-bed. The food consists of the various aquatic larvæ and insects, small snails and slugs and aquatic seeds to be found in such situations.

On migration the Great Reed-Warbler may be found almost anywhere, skulking in garden bushes, hopping about in the boughs of trees. It is then silent, save for the call-note.

The breeding season, which is of course dependent on the growth of reeds, is from late May to August, most eggs being found in June

and July.

The nest is a very deep massive cup, which is woven round the stems of four or five reeds usually at a height of about 2 feet above the water. The nest is built of coarse water grass, shreds of leaves and bark of the reeds, the fibrous roots of water-plants and similar

materials, and it is lined with finer materials of the same sort.

The clutch varies from three to six eggs, but four is certainly the normal number. The egg is a moderately dengated oval with a fine shell but no gloss. The ground-colour varies from greenish- or bluish-white to creamy stone-colour. The markings consist of very bluish-white to creamy stone-colour. The markings consist of very bluish-white to propose the colour varies and the propose of the colour of the colour of the colour of the colour of pair in the colour of the colour of pair in the colours of pair in this colour. The markings are usually most deem

towards the broad end, and there is a great deal of variation, not all the above markings and colours always appearing in one specimen. The egg measures about 0.90 by 0.60 inches.

RIVTH'S REED-WADRIED

ACROCEPHALUS DUMETORUM Blyth

Description.—Length 5 inches. Sexes alike. An indistinct fulvous streak over the eye; the remainder of the upper plumage and the sides of the face and neck brown distinctly tinged with olivaceous; wings and tail brown, the feathers edged with olivaceous; the whole lower plumage pale buff, paler on the chin, throat and abdomen.

Iris light brown; bill brown above, flesh-coloured below; gape and mouth vellow; legs brown, soles vellowish.

Tail somewhat graduated.

Field Identification.—A miniature edition of the Great Reed-Warbler with the mouth yellow instead of salmon-red; much less of a marsh bird, being found in any sort of cover except in heavy forest.

Blyth's Reed-Warbler is usually confused with two other Warblers of similar size and appearance. The differences from the Boete Warbler will be found under that species (p. 166). The Paddys-Field Warbler (derecephalus agricular) has the upper plumage uset in tint instead of olivacous and is normally found near water in controlled to engine cover.

Ditribution.—Blyth's Reed-Warbler breeds in Russia and Western Size and Turlestan. It is a very common passage migrant from August to October and again from March to May through the Himalayas and in the plains north-west of a line from the Ram of Cutch to Lucknow and a more or less common winter visitor to the rest of India and Ceybon. It also occurs in Assum and parts of Burma.

Habit, etc.—The observer in India must not be deceived by the name of High's Reed-Warbler, for on passage and in winter quarter the neighbourhood of water has no special attraction for this species. In winter it as brild of thick cover, found in any type of country other than thick forest. All that is essential to it is concealment and whether this be found in the helgerows of villages that the transfer of a reversel of the barren plains on the dense bracken thickets or water-of a reversel of the South India hills, it is content. It hops about the hidden stems in search of insects, solitary by habit though numerically abundant; and the observer is lucky who learns much more

of it than the single harsh note tschuk uttered at intervals of a few seconds, varied occasionally by chur-r-r or chr-chr.

On passage in Northern India this Warbler may be found anywhere in the trees of shady gardens and orchards, in isolated bushes on barren hill-sides and of course in any patch of thick cover. On spring passage the song is freely uttered. It is a vigorous and rather pretty song of a rambling character and would remind an English naturalise rather of a Linnet than of the Reed-Warblers of his own reed-beds.

The food consists chiefly of insects and their larvæ.

Blyth's Reed-Warbler does not nest within our limits.

The breeding season in the northern part of its range is about Tune. The nest is built both in marshy and dry localities-reed-beds are rarely chosen-in varied types of undergrowth and is a deep cup of bents and grasses, lined with hair, slung by the sides to the supporting vegetation.

The clutch usually consists of four or five eggs. They are said to be very variable. The ground-colour is bluish- or greenish-white or suffused brownish-grey, scantily but rather boldly spotted and blotched with olive-brown and ashy-grey.

The average size is about 0.7 by 0.5 inches.

THE BOOTED WARBLER

Description.-Length 5 inches. Sexes alike. A pale buffy-white line over the eye; upper plumage brown with a pale olivaceous tinge; wings and tail dark brown, the feathers edged with olive-brown, the outer tail-feathers faintly tipped and the outermost feather also edged with whitish; whole lower plumage very pale buff, the throat and middle of the abdomen whitish.

Iris brown: bill blackish-brown above, vellowish-brown below; gape and mouth yellow: legs steely blue-grey,

Field Identification.-A very indefinitely coloured little Warbler, brown above and pale buffy-white below with a pale streak over the eye. Usually found creeping about in bushes uttering a clicking note.

Distribution.—This species is divided into two forms which were formerly ranked as two separate species. The typical race (or Booted Warbler of literature generally) breeds in Central and Eastern Russia and Western Siberia, occurs on passage (March-May and August-September) in Persia, Afghanistan, Baluchistan and North-west India and winters from Central India to Ceylon. It does not occur east of the Duars and the Lower Brahmaputra. The other race H. c. rama (or Sykes' Tree-Warbler of literature) breeds in Persia, Turkestan. Afghanistan, Baluchistan, the Punjab and Sind and winters in India and Ceylon. It has not been recorded east of Moghulserai and Assensole.

In fresh autumn plumage caligata is a darker and more fulyous brown and rama is more of a uniform mouse-grey brown in tint. but these differences are soon obscured by wear and bleaching and the two races are most easily separated by the length of tail measured from the base between the two central feathers. This is below so millimetres (2 inches) in caligata and above that figure in rama. In other details, more particularly the bill, rama is correspondingly larger. The two forms cannot be separated in the field. Both these races require to be distinguished from Blyth's Reed-Warbler (Acrocephalus dumetorum). In the first place, their general coloration is much greyer.1 In both the minute first primary or flight-feather of the wing is 3.5 to 10 millimetres longer than the primary coverts, whereas in Blyth's Reed-Warbler and the allied Paddy-field Warbler (Acrocephalus agricola) this feather is usually shorter than or equal to the primary coverts and never exceeds them by more than 3 millimetres. In the Booted Warbler the bristles that line the base of the beak are small and weak; and finally the tail is much less deeply graduated and the white edge to the outer tail-feather is distinctive.

Habits, etc.-In the cold weather the Booted Warbler is a bird of any kind of dry country where bushes abound, save actual forest. It frequents gardens, scrub-jungle and babool trees in open fields and in such places it will be found skulking in the undergrowth or creeping about the branches of the babool trees. In the latter case its movements are very reminiscent of those of the Willow-Warblers and like the Siberian Chiff-Chaff it often flies out from the extremity of a bough to take insects on the wing. In general, it is very unobtrusive and seldom shows itself, but a subdued chuck or chick or chur-r, incessantly uttered at intervals of a second or two, records its gradual progress. Although solitary by nature, these Warblers are often numerically so abundant, especially on passage, that numbers

The song is said to be sweet and powerful and uttered both by night and day. It is not heard, however, on passage or in winter quarters and is confined to the breeding ground. In Baluchistan this species breeds in every orehard and garden of the Quetta Valley and particularly in the thick rose-hedges which surround the lucerne fields. In the Punjab and Sind it is a bird of the grass-jungles and

¹ This species differs in tint according to wear and race. If I have appeared inconsistent in describing the exact shades of brown, it is due to that

tamarisk-beds of the riverain tracts. In some areas it is so numerous that the breeding appears to be almost colonial.

The breeding season lasts from the second half of March to the beginning of July. The nest is a neat, compact little cup of grass bits of rotten bark, hair, string and other soft material, built on a framework of grass and lined with fine grass stems, feathers and cotton. At Quetta it is usually placed in the heart of a rose-bush. In the Puniab and Sind it is built either in a tamarisk or in a thick tuft of grass and in the latter situation it is usually a foot or less from the ground.

The clutch varies from three to five eggs. The egg is a broad blunt oval, of fine and close texture without gloss. There is much variety, but the ground-colour is generally a very pale grey-white tinged with greenish or pinkish and marked with spots and speckles. blotches and fine hair-lines and scrawls of black, purple, red-brown or pinkish-grey.

In size the egg measures about o.6 by o.5 inches.

THE TAILOR-BIRD

ORTHOTOMUS SUTORIUS (Pennant) (Plate xi, Fig. 6, opposite page 264)

Description.-Length 5 inches. Sexes alike. A rufous cap on the forehead: remainder of top and sides of head ashy-brownish, shading off into the shining but sullied white of the entire lower surface: there is a concealed dark spot on each side of the neck, and the thighs are rufous; remainder of upper plumage yellowishgreen, the concealed parts of the wings and tail brown.

Iris reddish-vellow: bill dark horny, lower mandible pale flesh

colour; legs straw colour to pale fleshy-red.

Bill rather long and sharp; in the breeding season the male acquires very long and pointed central tail-feathers, two inches longer than in winter.

Field Identification .- A familiar small garden bird of the plains, green above, white below with a rufous cap; carries the tail (which is long and pointed in summer, short and rounded in winter) erect over the back like a Wren; has a loud, strident call.

Distribution.-In the Tailor-bird we again have a common bird, of wide distribution from India to China, which is divided into several races. The typical race, small, with a large bill and no difference between the summer and winter plumage, is confined to Ceylon. The Indian race, O. s. guzerata, is larger, and in the breeding season develops the long tail-feathers. It is found

shroughout the country except in the more extreme desert areas. and from about Eastern Bengal and the Duars it is replaced by a more richly coloured bird, O. s. patia. The Indian form occurs in the Outer Himalayas up to 4000 feet, stragglers even ascending to 7000 feet, and in the southern ranges it also is found up to seco feet. The Tailor-bird is a most strictly resident species neither migrating nor moving about locally,

Habits, etc.-By name and repute the Tailor-bird is certainly one of the best-known birds of India, yet the number of people who can identify it by sight or sound or give any idea of its appearance is probably very small indeed. Like many other famous persons, the Tailor-bird is insignificant in appearance, a small, rather gawky, green bird, with a pointed tail and a rufous crown, which climbs about in undergrowth and is mostly hidden from sight. It is a bird of gardens and even verandahs, of the outskirts of villages, of patches of low evergreen undergrowth. Forest and bare desert areas are alike abhorrent to it. Where man has settled and made his home there will the Tailor-bird be found. Although seldom seen by the unobservant it is not shy, but with endless activity hops about the bushes and creepers round a house, investigating the flower-pots in the verandah and willingly feeding within a few feet of people, provided that they are not moving about. And as it goes it constantly utters the loud, discordant, strident call, loud for so small a bird and unmistakable when known, which is a familiar sound in every garden though known to few as the note of this species. When the note is uttered the throat swells and reveals the concealed black spots on the sides of the neck. The head and tail are held stiffly over the back after the manner of the English Wren. The flight is very curious; it seldom lasts for more than a vard or two from cover to cover, and the bird flies with obvious effort, the long tail flicking upwards over the back in a manner that can only seem a hindrance. The food consists entirely of insects.

But all the fame of the Tailor-bird is of course centred in its nest, and with the unfairness of the world it undoubtedly receives alone in popular estimation the credit as an architect which should be distributed amongst several species. For certain of the Wren-Warblers build nests on exactly the same principles as the Tailor-bird, and in addition build other beautiful types of nest, which it does not.

a slight lining of a few horse-hairs, and occasionally a few fine grass stems. For it the bird prepares an aerial cradle by sewing two or more leaves together, the nest being placed within the cavity so the leaves together; two large ones may be joined down their edges, several smaller leaves may be sewn together, or the nest may be slung between two or three leaves which are sewn to it and not to each other. The sewing is done with threads of cobweb, silk from cocoons, wool or cottons; the bird pierces a hole in the leaf with its sharp beak and draws the thread through, contriving in some manner to make a knot on the outside sufficient to prevent the thread slipping back; except that each stitch is made separately it would pass well for the work of human hands. It is frequently stated that dead leaves are picked up and sewn to the side of the nest, but this is an error, and the explanation is simple. These leaves were green and fresh when the work began, but they are injured and die from the effect of the stitches, and curling in the

The nest is placed at all elevations, either in low bushes, in the hanging boughs of loquat and similar trees, or high up in some lordly mango tree. The only essential condition is a tough large type of leaf: but most nests will be found within 6 feet of the ground.

The principal breeding season is in May, June, and July, but occasional nests may be found in other months. The bird is very suspicious of interference, and readily deserts a half-built nest which has been found and looked at.

Three to six eggs may be found, but the normal clutch is certainly three or four. They are rather long and pointed in shape, very thin and delicate, and with but little gloss. They fall into two types of coloration, with the ground-colour either reddish-white or pale bluishgreen; the former is more common. The markings consist of bold blotches or sometimes ill-defined clouds, mixed with speckles, spots, and dashes of red, reddish-brown, brown, black, or purplish-black, These are seldom dense in character and there is a tendency for the larger markings to collect towards the broad end of the egg.

The eggs measure about 0.64 by 0.46 inches.

heat break loose from their parent stem.

THE FANTAIL WARRLER

CISTICOLA JUNCIDIS (Rafinesque)

Description.-Length 4 inches. Sexes alike. Winter plumage: The whole upper plumage, including the wings, dark blackish-brown, the feathers broadly edged with fulvous; rump plain rufous; a broad eyebrow, the sides of the face, except for the brownish ear-coverts, and the whole lower plumage buffy-white, becoming buff on the breast and flanks; tail dark brown, central feathers edged with fulvous and remainder with white tips and a black subterminal bar.

The male in summer has the top of the head and neck plain brown

and the tail a quarter of an inch shorter with rufous patches above the black bar.

Iris vellow-brown; bill fleshy, darker along the top; legs fleshy,

The tail is rounded and expands into a perfect fan.

Field Identification.-Plains species; a minute, streaked black and brown bird, with pale under parts, found in thick herbage; skulks until disturbed, then has a curious mounting flight in the

Distribution.-The Fantail-Warbler has an immense range in Southern Europe, Africa, and Asia, and is divided into several races. Of these, C. j. cursitans occurs throughout practically the whole of India from the North-west Frontier Province and Sind, but not Baluchistan, to Assam, Burma, Siam, and Yunnan. It occurs here



Fig. 26-Fantail-Warbler (# nat. size)

and there in the various hill ranges up to about 6000 feet, but is, properly speaking, a plains bird. In the main resident, it is also locally migratory. A darker bird, C. j. salimalii, is resident in Travancore.

grassland, in patches of reeds and tamarisk thickets, or the raised grassy bunds of rice cultivation. In such cover it skulks and is very retiring, seldom climbing above the stems, and would not come the bird jerks itself high into the air, and after flying some distance falls headlong again into cover. During the breeding season the male soars in the air in a most erratic fashion, rising and falling in jerks but keeping roughly above the area of which the centre is the nest site, and towards this he falls very quickly at intervals as if intending to settle; just, however, as he nears the ground he shoots up into the air again and resumes his soaring jerks. All the time he utters a creaking, clicking note which rises to its climax as each aerial jerk reaches its highest point, coinciding with it. When feeding

young the parent approaches the nest in somewhat similar fashion, flying well up in the air though not to the height of the male's display; as it comes it utters a note which is softer and more level in tone than the display song, but the whole approach rather resembles the above display and may easily be mistaken for it. The young in the nest when disturbed utter a menacing, hissing note.

The breeding season lasts from April to October, but is connected with the rains, the birds never breeding when the weather is dry,

The nest is built in a tuft of green grass near to the ground, and is a very delicate and beautiful affair, being composed of white cobwebs with a lining of vegetable-down, the green blades of growing grass being incorporated in the sides of the structure. In shape it may be oval with the entrance near the top, a long deep purse narrowing towards the top, or a cup with a canopy woven over it.

The clutch varies from three to seven eggs, but five is the usual number

The eggs are rather short ovals in shape, fine and delicate in texture with a fair amount of gloss. They are pure white, faintly tinged with blue, or even very occasionally a definite pale blue, finely spotted and speckled with reddish-brown; there is a tendency for these markings to collect into a cap or zone.

In size the egg averages about 0.50 by 0.46 inches.

THE RUFOUS-FRONTED WREN-WARBLER

(Plate x, Fig. 1, opposite page 240)

Description.-Length 5 inches. Sexes alike. Upper plumage including the wings reddish-brown, brighter on the head; a mark over the eye and the whole lower plumage white, sullied with fulvous on the sides of the head and towards the tail. Tail brown, rather long and graduated, all except the central pair of feathers tipped with

In winter the tail is half an inch longer.

Iris reddish-yellow; bill brown, lower mandible pale fleshy; legs pale fleshy-brown.

The Wren-Warblers of the genus Franklinia have twelve tailfeathers, which readily distinguishes them from the genus Prinia

Field Identification .- A small plains bird found in scrubby bushes in open arid country; brown above with a reddish crown and whitish below, a long full tail edged with white. Wren-Warblers of the genus Franklinia are found in parties, while those of the genus Prinia are found usually singly or in pairs.

Distribution.-A purely Indian form. It occurs in the plains of the whole of the north-west corner of India, from the North-west Frontier Province and the Upper Punjab through the United Provinces, Sind, and Rajputana down to the Central Provinces, the Deccan, and Western Bengal and Behar as far as Ranchi and Hazaribagh. A purely resident species.

Habits, etc.-This quaint little bird avoids damp and welltimbered localities, and is by preference a bird of semi-desert localities. It is in its element in the bare sandy plains of the Lower Punjab, Sind, and Rajputana, where the most conspicuous vegetation is the wild caper, whose tight thorny bushes rise in little mounds all over miles of open country. Here this Warbler is abundant, and one of the most noticeable birds, living in energetic little troops which are always on the move, creeping in and out of the bushes and running like mice on the ground at their base. It is also addicted to dry, stony hills with low bush-jungle, and ventures into the lighter crops such as cotton and mustard. During the breeding season its very cheerful little song is a marked feature of the plains that it inhabits.

The breeding season extends from March to September, and

probably two broods are reared.

The nest is usually an oval domed structure, with the entrance near the top at one side. It is built of fine grass stems and tow-like vegetable fibres, and the egg cavity is softly lined with vegetabledown and a felt-like substance formed of dry portions of the ber bush. A few nests are cup-shaped or purse-like and suspended. The site chosen is generally very close to the ground, a matter of inches, but it may be occasionally 3 or 4 feet above it. It is built in bushes, a favourite situation being either a low close caper bush, or in a heap of dead thorn loppings overgrown with grass. The clutch varies from three to six eggs, but the usual number is five.

The egg is a moderately broad oval, the shell very delicate and fine with a fair gloss. The ground-colour is white, slightly tinged with grevish or greenish; it is thickly and finely speckled all over with somewhat dingy- or purplish-red, and there is a slight tendency

for the markings to collect towards the broad end. The average measurement is 0.62 by 0.48 inches.

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FRANKLIN'S WREN-WARBLER

FRANKLINIA GRACILIS (Franklin)

Description.—Length 4 inches. Sexes alike. Summer plumage: Upper plumage dark ashy-grey, the wings and tail washed with brown; lower plumage white, a broad ashy band across the breast and the flanks washed with ashy.

Winter plumage: An indistinct white streak over the cys; upper plumage brown, the wings and upper tail-coverts washed with chestnut-brown, the tail washed with grey; whole lower plumage white, washed with grey and fullyous. In winter plumage the tail is half an inch longer and the indistinct spots towards the ends of the tail-feathers are more pronounced.

Iris brownish-yellow; eye-rims orange; bill dark brownish-black; legs yellowish-orange, claws dark borny.

Tail shought anadusted of toucher footbar

Field Identification.—A small bird with a longish tail found in parties in flow open scrub. Summer plumage aby-grey above, white below with a broad sahy band across the breast. Winter plumage warm brown above, sallied white below with no breast band, to two plumages so different that they would never be taken for the same bird.

Ditribution.—Ceylon, India, Assam, Burma to Tenasserim, Siam, Anam, and Laos. Found throughout India except the Punjab Plains, North-west Frontier Province, Sind, and desert Rajputana. Occurs up to about 4000 feet, both in the Himlapsys and the ranges of the Peninsula. A strictly resident species with the following races:

The typical race has sharply defined summer and winter plurages as already described. It is found in Rajputans, the United and Central Provinces, the Bombay Presidency and in North Hyderabad as well as in Arakan. F. g. hodgoni is found along the Outer Himalsways from Murree and Kashmir to the Duars, in Assam and in the Kachin Hills in Burma. This race has a more rasty time winter plurages. F. g. allegalaris of South India has the upper parts darker in summer. F. g. plurages and is whiter on the lower parts in winter plurages. F. g. plurages and is whiter on the lower parts in winter plurage. F. g. plurages and is suffered to the plurage of the property of the plurage of th

Habits, etc.—Franklin's Wren-Warbler is a bird of all the more open types of country. By preference it is found in open scrub-jungle where low bushes grow amidst coarse grass and scattered small trees, but it is also met with in hedgerows, fairly light forest, in cultivation broken by patches of cover and even in reed-best and mangrow evamps. In such localities it is met with in small parties which lead a life of great activity, houting incessantly for insects in the grass and bushes or running on the ground at their base. It seldom ventures into trees at any height above the ground. It is a very poor filer, proceeding by curious little jetyl flights, the tail jerking awkwardly as it goes. There is a feeble little vittlering song.

The main breeding season is in the rains from July to September, but in the hills the birds are said to breed earlier from about April

to June.

The nest is a small cup of fine dry grass and vegetable fibres, felted here and there on the outside with small lumps of would vegetable-down. It is carefully sewn with cobwebs, slik from cocons or wool into one or two leaves which often completely envelop it, leaving no part visible. It thus closely resembles the nest of the Tallier-brid, but as compared with that species the situation chosen is normally closer to the ground at a height of 2 or 1 feet, and more nests are sewn to a single leaf once nests.

The clutch consists of three or four eggs, the latter being usual. The eggs vary considerably. They are typically rather slender oxia, a good deal compressed towards one end; the shell is exquisitely fine and glossy. The colour varies from pure white or pure bright blue, unspotted, to almost any shade of pinly-white, palle grey-green or greenish-blue, specified all over or in a zone or cap at the broader end with reddish-brown.

The egg measures about o 58 by o 42 inches.

THE LESSER WHITETHROAT

Sylvia curruca (Linnæus) (Plate x, Fig. 2, opposite page 240)

Description.—Length 6 inches. Sexes alike. Upper plantage earthy-brown, the whole top of the head contrasting brownish-grey; a broad band through the eye dark brown; wings dark brown, edged paler; tail dark brown, a large portion of the outer feathers white; the whole lower plunnage greyshin-white.

Iris yellow-brown; bill dusky, lower base slaty hora; legs

Princeous.

Field Identification.—Brown above, dirty white below, with a darkish cap and a white edge to the tail; a very quiet, shy bird, which creeps about in trees and is particularly partial to acacias.

Distribution.—The Lesser Whitethroat is a widely-distributed breeding species in Europe and Northern Asia, migrating southwards to Africa and Southern Asia in winter. There are several races, of which we are concerned with two. S. c. blythi differs from the typical European form in having the second primary always shorter than the sixth, usually between it and the seventh in length. It breeds in Siberia and Manchuria, and is a very abundant winter visitor to the plains of India, extending on the south to Ceylon, and on the east to Behar and Western Bengal. S. c. minula differs from S. c. blythi in its smaller size and considerably paler upper parts. It breeds in Transcaspia and Eastern Turkestan, and in winter appears in North-western India in the North-west Frontier Province, Puniah. Sind, and Rajputana. Both races, therefore, are to be found on the same ground in North-western India, and the identification of some individuals is a matter of difficulty. Both races commence to arrive about September and leave about April, though blythi stays a little later than minula. The typical race does not occur in India. A darker allied species with a larger bill, Hume's Whitethroat (Sylvia althora), which breeds in Kashmir and winters in Southern India, is

The Orphean Warbler (Sylvia horteniii) is a winter visitor to the greater part of India except the extreme north-east. It breeds in Baluchistan and the North-west Frontier Province. Of the habits and general appearance of the Whitethroats it is larger with a marked cap, grey in females and black in males.

Habiti, etc.—Both the races of Lesser Whitethroat that arrive in India are very similar in their habits in winter; they spend their time creeping about in small bushes and trees looking for insects and caterpillars, and are very allest except for an ocasional tank onto. While hlytih, however, living in any type of country except deep forest, prefers trees, and more especially the various species of each, with whose pollen its head is often stained yellow, minded of semi-desert country.

The breeding habits of both races are very similar in their respective ranges, where they lay about May and June. The nests are neat but rather fragile cups of grass and roots, lined with horse-hair or fine grass stems; they are built in bushes within a few feet of the ground.

The clutch consists of four to six eggs; these are rather broad ovals, creamy-white in colour, rather boldly but sparingly marked with sepia-brown and grey.

They measure about 0.66 by 0.5 inches.

easily confused with these two races,

THE CHIEFCHA'DE

PHYLLOSCOPUS COLLYBITA (Vicillot)
(Plate x, Fig. 3, opposite page 240)

Description.—Length 5 inches. Sexes alike. Upper plumage brown, faintly tinged with green; a distinct buff line over the eye, with a darker line through the eye; wings and tail dark brown, finely edged with olive-yellow; lower plumage buff, darker on the breast and flanks; wing-lining primrose-yellow.

Iris dark brown; bill dusky brown; legs brownish-black.

Field Identification.—A very small brown bird, with pale buff und

parts and a buff line over the eye, which creeps about in trees and in herbage near water, often in small parties, uttering a plaintive note. Distribution.—The Chiffchaff is very widely distributed throughout

Europa, Africa, and Asia in a number of races. The typical form does not even in our area, but two others are found as winter visitors. P., e. indiama breeds in Kashmir territories and Central Asia and is a somewhat local winter visitor to the North-west Prontier Province, Punjah, Sind, United Provinces, and Rajputana. The Siberian Chiff-chaff, P. e. tristity, which breeds in Northern Asia, is found from about Sptember to the end of April in India, over the whole of the northern and central plains as far south as Bombay and Ories, often in great numbers. In freshly moulted plumage it can be distinguished from P. e. sindiams by the tinge of green in the upper plumage, and from the typical English Chiffchaff by the absence of yellow in the lower plumage.

Habiti, etc.—There are in the Indian Empire about thirty forms of the genus Phyllineopia, which includes the well-known English Chitrichaff and Villow Wren. Their distribution is very variable, but as far as it is concerned, it may be stated that none breed any and the country except in the Himalayas and on the higher engages on the frontiers of Afghanisan and Bluchistan, and there is no part of India where several forms may not be met with either as passage migrants or as winter visitors. Their identification is a matter of great difficulty, based on minor points of are and wing formula and slight differences of planting practically every case ring the changes on greens, browns, and yellows; though in the field this is assisted by slight differences in high time and voice.

The Siberian Chiffchaff is a very common winter visitor to Northern India wherever trees in leaf or cultivation exist. It is met with both singly and in small parties, which search for insects up in the trees, in hedges, or in various creps, and it often flies to the extremity of a bough to take an insect on the wing. It is particularly fond of cotton fields, lucerne, tamarisk, and acacias, and it has a characteristic habit, seldom shared by others of the genus, of hunting in reed-beds and other vegetation low over water. The callnote is a very plaintive tweet. Passage migrants in March on their way north freely sing a typical song, chiff-chaff, chiff-chaff, like that so well known in England.

P. c. sindianus breeds in Gilgit, Baltistan, Ladakh and Lahul from

May to July.

The nest is a large structure of dry grass and bents, domed with the entrance at one side; it is profusely lined with feathers on a layer. of fine vegetable-down. The situation chosen is on or close to the ground in herbage, low bushes or thorny hedges.

The usual clutch consists of four eggs. They are rather broad ovals, very fragile with a slight gloss; the colour is white, spotted with chestnut-red, chiefly towards the broad end.

The average size is 0.65 by 0.48 inches.

Description.-Length 4 inches. Sexes alike. Upper plumage dull olive-green, with obscure traces of a pale streak down the crown; a broad buffy-white line over the eye; sides of the face mottled with buffy-white; wings and tail dark brown edged with greenish, two -buffy-white wing-bars, the upper rather obscure ; entire lower plumage sullied white.

Iris dark brown; bill dark brown, base of lower mandible

vellowish ; legs grevish-brown.

Field Identification.-This is another of the minute green or brown birds which hunt for insects in the foliage of trees, and are only to be discriminated with much practice and knowledge both in the field and in the cabinet. The greenish colour, dirty white below, the double wing-bar and the call-note tiss-yip are guides to the identity of this particular species.

Distribution.-Breeds throughout a large portion of Siberia and Central Asia, migrating southwards in winter. It is divided into three races. The typical form breeds in Siberia, migrates through the greater part of Asia and winters in Bengal, Assam, Burma, and eastwards to Southern China. P. i. humii, differing in the brighter olive-green of the upper parts, breeds in the Western Himalayas between 7000 and 12,000 feet, and in Turkestan, Tian-Shan, and Afghanistan. Starting at the end of August it spreads in winter through India southwards to Travancore and eastwards to Bengal and Orissa, but curiously enough avoids Sind. The return migration takes place about April. P. i. mandelii, which breeds in Kansu and Szechwan and is found in Bengal and Lower Assam in winter, has the head darker than in the other races.

Habits, etc.-In India the Yellow-browed Warbler is always solitary and spends its time in the boughs of trees searching for insects and uttering as it goes a note which is best described by the syllables te-we-ut or tiss-yip, rather sibilant and plaintive. In the breeding season the only song is a loud, double chirp uttered by the male, really only an elaboration of the above note.

It has a trick of nervously flirting its wings as it feeds and moves about the boughs. This species in winter seldom comes down low near the ground, nor is it found in bushes by water like the Siberian

The breeding season in the Western Himalayas is in May and

June. The nest is built on the ground on some sloping bank or ravine-side, either in open ground or at the edge of forest. It is a rather large globular structure, with the entrance at one side. The materials consist of rather coarse grass, with an inner lining of fine grass roots or hair; feathers are not used.

Three to five eggs are laid, but the usual clutch is four. The egg is a broad oval slightly compressed towards one end, fine in texture with very little gloss. In colour it is pure white, speckled and spotted with reddish-brown or purple, the markings tending to form a cap or zone round the broad end.

The egg measures about 0.56 by 0.44 inches.

THE GREENISH WILLOW-WREN

PHYLLOSCOPUS TROCHILOIDES Sundevall

Description.-Length 5 inches. Sexes alike. Upper plumage dull olive-green, the concealed portions of the wings and tail dark brown; a pale yellow bar across the greater wing-coverts; a broad pale yellow streak above the eye with a darker line below it; lower

plumage dull white washed with primrose-yellow. Iris dark brown; bill brown, lower mandible horny yellow; legs

Field Identification.—Olive-green above, yellowish-white below. with one pale wing-bar, and a pale eye-streak; a quiet, undemonstrative species creeping about in the foliage of trees.

.Distribution.-Breeds from Eastern Europe to Eastern Siberia southwards to Persia and the Himalayas being divided into several races of which the following concern us. P. t. viridanus (as described above) breeds from Pomerania and the Baltic Provinces to Western Scheria, Altair, North-western Mongolis and Damparan to Gilgit and Kashmir. It winters in India below lines from Mercury common in forom the Sikkim Tera to Calcuttu. On passage if two Moneya or month of parts of the Himalayas, Punjab and North-west From Common in parts of the Himalayas, Punjab and North-west From Common in parts of the Himalayas, Punjab and North-west From white and winters read upper Eastern Glats. This race intergrades through Gahrval and Kumaon into the much darker P. t. trothibidasé which breeds in the Eastern Himalayas and South-western China and winters in North-castern India.

P. t. nitidus breeds in the Caucasus, Transcaspia and Persia, passes in considerable numbers through North-western India on passage and winters in South-western India and Ceylon. It is a much brighter green above, bright primrose-yellow below and has two pale

Habit, etc.—This Willow-Wen apends its whole time in the whether increases where it is to foliage of trees collecting insects and their larvae and eggs; it is more silent than most of the other common species, but has a call-note a penetrating dis-tere. During the spring and autumn passage it often swarms in North-western India, every tree containing one or more individuals.

In the Himalayas it breeds from May to July. The nest is a large, untidy ball of grass and moss, mixed sometimes with a few roots and dead leaves, the cavity being lined with wool and bair. The entrance is on one side. It is always placed on steep ground, either in the open or amonest scrub and herbare.

Four eggs are laid, pure white, very fragile and soft in texture

with practically no gloss.

They measure about 0.6 by 0.45 inches.

THE LARGE CROWNED WILLOW-WREN

HYLLOSCOPUS OCCIPITALIS (Blyth) (Plate x, Fig. 4, opposite page 240)

Description.—Length 5 inches. Sexes alike. Upper plumage olds the control of the head darker and with a broad irregular streak down the centre; a well-defined yellowish line above the vge and a dark line through it; concelled portions of the wings and tail dark brown; two yellowish wing-brass, the upper less distinct, and both tending to disappear in worn plumage; lower plumage white suffused with pade yellow.

Iris dark brown; bill brown, lower mandible yellow; legs greyish

brown.

Field Identification.—The common breeding Willow-Wren of the Western Himalayan stations; green above, white below, with a marked eye-streak and a pale streak on the top of the head; rather bold and noisy in demeanour.

Ditribution.—A parely Asiatic Willow-Wren, which breeds very commonly in Turkestan, Afghanistan, and the Western Himalayas as far east as Nepal. In the Western Himalayas its breeds at elevations between 6500 and 9000 feet, being the common breeding Willow-Wren of all the hill stations. In winter it migrates through or winters in the whole of India (except Sind), extending to Travancore, Orissa and Beneal.

Habiti, etc.—This Willow-Wern spends most of its time in tree when in the plains, but in the hills it feeds a good deal in bashes where it wanders with the mixed hunting parties of small insectivorus blirds. Its call-note is a loud sharp tis-where of shorp-tile, high-chip-tile, When breeding it has a loud song, the most monotonous repetition of a rather shrill whistling note seven times respected, and at that season is much addicted to filtring its wings; then, too, the males become combative and quarrelsoms.

In the Himalayas the breeding season is in May, June, and July. The nest is placed in holes, either amongst the roots of trees, in banks and walls, or even under the eaves of houses. It varies in shape according to the circumstances of the hole, being either as well-made domed structure or a mere pad, and is composed chiefly of moss; rens. hair and wood are sometimes added as a lining.

Four to six eggs are laid; they are rather elongated ovals, often sharply pointed at the smaller end, fine in texture and pure white with a slight closs.

They measure about 0.65 by 0.50 inches

THE GREY-HEADED FLYCATCHER-WARBLER

CERCUS VANTHOSCHISTOS (Gray)

Description.—Length 4 inches. Sexes alike. Top and sides a pale the head and neck and the upper back pale ashy-brown; a pale streak down the centre of the crown and another above the eye; remainder of upper plumage yellowish-green, the concealed portions of the wings and tail brown, the two outer pairs of tail-feathers white on the inner webs; the whole lower plumage bright vellow.

on the inner webs; the whole lower pulmage origin yellow.

Iris dark brown; bill dark brown, lower mandible yellow; legs olive-brown; soles yellow.

Field Identification.—Abundant Himalayan form, of the Willow-Wren type in appearance; upper parts grey and green, with pale Dittribution.—A Himalayan species, extending from the hills of the North-west Frontier Province on the west into Assam and the Chin Hills in the east. It is divided into Eastern and Western races which meet about Nepal. The Eastern race is the typical one, while the Western race, S. x. albempercularia; is considerably paler throughout, especially about the head. It breeds as a rule between 3500 and 6000 feet, and while some birds winter in this zone the majority move lower, and numbers of the Western race penetrate into the plains in portions of the Punjah and Dirited Provinces of the Western race penetrate into the

Another common species in this genus is the Black-browed Flycatcher-Warbler (Seicercus burkii) in which the lateral bands on the head are blackish. A marked yellow ring round the eye. It is found throughout the Himalayas as far west as Dharmsala.

Habiti, etc.—This pretty little Warbler is a very familiar species about the Himalayan hill stations. It is found in all types of wooded hills, coming freely also into cultivation and gardens. Except when nesting it is purely arboreal and it hunts incessantly for insects through the leaves and twigs of trees and bushes, both singly and in the mixed hunting parties. Its song is a loud and rather monotonous, though not unpleasing, trill off several notes, which is one of the most familiar sounds of the Lower Himalayas. The call-note is a rather plaintive prite-prite or two-type.

The breeding season lasts from March to June in the Western Himalayas and from April to August in the east.

The nest is a large, globular-domed structure, with a rather large entrance high on one side. It is composed chiefly of moss withly of moss with which are mixed dry leaves and grasses and other miscellaneous unbibst. The cavety is thickly lined with hair and wool in the Western race, and more sparingly with vegetable downs and roots in the fisser race. The nest is usually placed on a grassy bank at the foot of a bush and is well concealed and difficult to find unless the bird is swetched to it.

Three to five eggs are laid, but the normal clutch consists of four eggs. The egg is a moderately broad oval, of fine texture, with a fair amount of gloss. The colour is pure white.

The egg measures about 0.60 by 0.5 inches.



stripes on the head, lower parts bright yellow

Translations A Binnilyan species, extending the North-wort Frontier Province on the west as the North-wort Frontier Province on the west as the same and the State of the Stat

Another common apocies in this genus is the Elyestcher-Warbler (Seicereus burkii) in which the head are blackish. A marked yellow ring round to

Hobbit, etc.—This pretty little Warbier is a very foundable the Himshapun bill existion. It is found in all type about the Himshapun bill existion. It is found in all expensions to the probability of the

The breeding season lasts from March to June in 18

The nest is a long, debade-doned structure, with entrace high one seed. It is composed chiefly of which are mixed de lowes and grasses and other mobiles. The courty is thickly lined with his and we wastern nece, and more sparingly with vegetable downs and the fastern nece. The nest is usually placed on a grow the fast of a both and is well concealed and difficult to the line lined in which the line is not seed to be seen as the past of a both and is well concealed and difficult to the line lined is well-does to it.

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t. Green Bee-Eater. 2. Red-vented Bulbul. 3. Golden Oriole. 4. Coppersmith.
5. Jungle Babbler. (All about \(\frac{1}{2} \) nat. size.)

THE BROWN HILL-WARBLER

SUYA CRINIGERA Hodgson

(Plate x, Fig. 6, opposite page 240)

Description.—Length 7 inches, including tail of 4 inches. Sexes alide. Winter plumage: Upper surface follows-brown, streaked with black except on the runny; wings brown, edged with rulous; tail long and graduated, brown, obsoletely cross-rayed, the feathers with indistinct pale tips preceded by a darker spot; lower plumage fulvous, slightly flecked with blackish on the throat and breast, and whitish on the middle of the abdome.

Summer plumage: Upper surface dark brown, the feathers edged with olivaceous; lower plumage uniform pale fulvous, the feathers of the breast showing their dark bases; wings and tail as in winter account that the tail is shored.

Iris yellow-brown; bill, summer black, in winter brown, lower mandible fleshy: legs fleshy-pink.

mandible fieshy; legs fieshy-pink.

Field Identification.—Northern hill form; a small brown bird, paler below and usually streaked above, with a very long graduated tail; usually skulks in grass and bushes, but sits in elevated and

Ditribution.—The Brown Hill-Warbler has a wide distribution in the hills that bound the whole of Continenal Indis, brough Assam and Burma, reaching on the east as far as China. It is divided into several races, of which two concern us. The typical race is found from the North-west Frontier Province, along the whole of the Himalaya, as far as North-western Assam, at elevations from 2500 to 7500 feet and sometimes higher. S. c. tristabla, which is much older and greyer in coloration, is found from plains level up to about 5000 feet in the Punjah Salt Range and the hills running from the western limit of the typical form along the North-

western Frontier down to Baluchistan. It is a resident species.

Habit, et.—This hill brid avoids forest and keeps either to
grassland and the neighbourhood of cultivation, or else to sexubjungle on bare stony hill-sides, often in the most barren and desolate
hills. It is capable of bearing great extremes of temperature. It is
rather a shulter and spends most of its time chambering about Rie
a mouse in the interior of bushes and tangles of vegetation, threading
its way delty amongst the stems and often descending to the ground.
The flight is rather weak and jerky, and the brid seldom files far at
response to the bird's emotions. The brid is, however, best known
to people through the medium of its song, a wheever, kennying series.

of notes repeated to monotony like the sound of a saw; this some is very commonly heard on open hill-sides round the hill stations of the Himalayas, and the little bird utters it from the top of a bush or tall plant, or from a telegraph-wire often high above a nullah.

The breeding season lasts from May to July, but the majority of

birds lay in May.

The nest is a flimsy, oval-domed structure, with the entrance towards the top at one side; it is composed of grass-blades felted with grass down, the bottom of the interior being lined with fine grass-stems. It is built within 4 or 5 feet of the ground, in small thorny bushes, in herbage or in the grass.

The normal clutch consists of four eggs. The egg is in shape a regular but somewhat elongated oval with a fair amount of ploss. The ground-colour varies from white to pale salmon-pink; the markings consist of fine speckles, spots and blotches of reddishbrown, sometimes scattered over the whole surface but more usually tending to collect in a marked zone or cap round the broad end.

In size the eggs average about 0.70 by 0.50 inches.

THE STREAKED WREN-WARRIER

PRINIA GRACILIS (Lichtenstein)

Description.-Length 5 inches, half of which is tail. Sexes alike. Upper plumage fulvous-brown streaked with dark brown; sides of face mottled brown and white; wings brown edged with fulvous; tail, long and graduated, brown, distinctly cross-rayed, the feathers tipped with white preceded by a dark spot; the whole lower plumage very pale fulvous.

Iris yellow; bill black in summer, in winter brown, the lowermandible horny-yellowish; legs fleshy-white, claws brown,

This and the following species of the genus Prinia have ten tailfeathers as opposed to twelve in Franklinia.

Field Identification .- A minute bird with a long graduated tail, streaked light and dark brown above and pale below; chiefly found in coarse sarpat grass in riverain tracts. A miniature of the Brown Hill-Warbler. Distinguished from the other Wren-Warblers by the streaks on the upper plumage.

Distribution.-This Wren-Warbler has a wide distribution through Northern Africa, Palestine, Southern Arabia, Persia, and Northern-India generally. It is divided into several races, of which we are concerned with two. P. g. lepida is found in Afghanistan, North-west Frontier Province, Punjab, Sind, the United Provinces, and Rajputana.

A rather darker race, P. g. stevensi, is found in Assam and Eastern Bengal and in the Ganges delta. A strictly resident species.

Habits, etc.-This, the smallest of the Wren-Warblers of the genus Prinia, is essentially a bird of riverain areas, frequenting the low sandy-ground, studded with clumps of sarpat grass and thickets of tamarisk, which is found in the wide and partly dry beds of the great rivers of Northern India. Where similar conditions are reproduced along the sides of canals and in the neighbourhood of jheels there also will the bird be found. In such localities it creeps about the stems of the grass and tamarisk, at a height of two or three feet from the ground, venturing into the open occasionally to fly from clump to clump, no light task to so clumsily-balanced and weak a flier. It constantly makes a curious snapping noise with its bill.

When nesting the cock bird chooses a high stem of grass in the vicinity of the nest, and from it untiringly pours out a feeble monotonous song, which betrays the site to those who know his

The breeding season lasts from March to August, and it is probable that two broods are reared. The nest is a tiny ovaldomed structure with the entrance hole high on one side; it is built of fine grasses and shreds of grass-blades, the inside being softly lined with the pappus of grass seeds. It is placed about 2 feet from the ground in the centre of the thick clumps of sarpat grass, which by then have usually been cut off about 3 feet from the ground for village purposes.

The clutch consists of three or four eggs,

The egg is a broad oval, rather pointed towards the smaller end, and fine in texture with a decided gloss. The ground-colour is grevish-, greenish- or pinkish-white, and the markings consist of a fine and thickly distributed freekling of brownish-red and purplishgrey, with a tendency to form a cap or zone at the broad end.

In size it averages about o 53 by 0.44 inches.

THE ASHY WREN-WARBLER

(Plate v, Fig. 3, opposite page 96)

Description.- Length 5 inches, of which half is tail. Sexes alike. Summer plumage: Whole upper plumage dark ashy, sometimes with a white line over the eye; lower plumage including sides of face pale buff; wings rufous; tail long and graduated, rufous, the feathers tipped with white preceded by dark spots.

With the plumage: Top of head ashy with a rufous tinge; a short with the over the eye; remainder of upper plumage including wings and tail rufous-brown, the tail having the same markings as in the summer plumage, but being one inch longer; lower plumage buff, except the chin, throat and central abdomen which are which.

Iris yellow-brown; bill black; legs fleshy.

Field Identification.—A very small bird with a long tail; upper parts dark ashy, lower parts warm buff. Found singly or in pairs in rank herbage, particularly in gardens, attracting attention by its sharp call-note.

Distribution.—The Ashy Wren-Warbler is one of the commons birds of India and is widely distributed throughout the whole continent from the Outer Himalayas to Ceylon, though it is not found in Kashmir, the North-west Frontier Province, Baluchians, or Sind. On the east it reaches Eastern Assam. There are four races: P. t. bereinsulad of Ceylon and the typical race, found throughout the Peninsula south of a line between Mhow and Lohardugga, have their winter plumage will are the summer plumage. Entire the former is, however, smaller with a shorter tail. P. s. stewart of Northern India saumes the very distinct winter plumage described above. In the Duars and Upper Assam it is replaced by P. s. inglisi, at darker brief with a fine short beak. All races are strictly sectionary.

Habits, etc.-This little bird is found both in the hills and the plains. But while in the north it is only found up to about 4000 feet in the hills, in the warmer south it occurs up to about 7000 feet, literally swarming in suitable places in the Nilgiris. It is a bird of open country, avoiding forest, and preferring cultivation, whether in the shape of gardens or arable land. It is perfectly at home in the close vicinity of houses and villages, and may equally be found in open, rolling grassland. In all these localities it requires cover in the shape of bushes, tangles of weeds and other herbage or crops and it is very fond of fields of sugar-cane. As in the case of the Indian Wren-Warbler, therefore, this species is compelled to move its ground slightly according to the state of the crops in which it lives. Its habits are the same as those of that species, but it is perhaps more excitable and noisy during the breeding season, its very anxiety often betraying the nest which it is anxious to preserve frommarauders. The call-note is very loud and sharp, and the song is less of a jingle than that of the Indian Wren-Warbler.

This bird appears often to be double-brooded and nests may be found from March till September; but the majority are undoubtedly built with the commencement of the rains in June or July and the growth of the bush vegetation in which the little bird delights to have his bairs.

The nest is very variable and falls into three types. The first

type closely recalls the next of the Thiob-lind, sexing entering largely into its composition. Either the next is placed within the ordice formed by sewing together the edges of two or three leaves, or else it is attached to a single large leaf whose edges are drawn about it, and partly enclose it; large soft leaves, such as those of the sunflower, fig and bindweed, are preferred for the purpose. The actual next in this type is a deep cup of fine dry grass stems and roots, mixed and lined with a few horse-lairs, all visible portions of the outside and sattled with a rough felting of vegetable contents being plastered and sattled with a rough felting of vegetable contents and the sattled with a rough felting of vegetable contents of the content of the degree of leaves together, or else the mere pushing of rough knots of cotton through punctured holes in the leaf.

The second type of nest is an oval-domed structure of varied shape and size, with the entrance on one side. It is composed of fine shreds and stems of grass, fibres and threads, the result being a drab-coloured ball; it is built in thick bushes and occasionally intensified but seeming of left at practice the switches.

The third type of nest is a rough shapeless ball of roots or grass those these states of a plant and hardly attached to

The clutch consists of three or four eggs, and occasionally as many as six. The eggs are very handsome. They are a rather perfect oval with a tendency to vary to a globular shape; there is a high gloss. In colour they are a rich brick-red, sometimes paler and yellower, sometimes deeper and of a mahogany tint. There is occasionally a clouded zone of deeper coloration about the broad end.

They average about 0.64 by 0.47 inches in size.

In the Deccan this bird is a common foster-parent for the Indian

THE JUNGLE WREN-WARBLER

A SYLVATICA Jerdon

Description.—Length 6 inches, female rather smaller. Sexes alike, the property of the property

white; lower plumage pale whitish-buff.

Winter plumage: Upper plumage warm ruddy fulvous, a pale buff line over the eye; wings dark brown, the edges of the feathers washed with ruddy fulvous: tail dark brown, all but the central pair of

feathers with pale fulvous tips, preceded by dusky subterminal spots: lower plumage white washed with ochraceous on the breast and flanks.

Iris and eye-rim orange; bill black in summer, in winter horaybrown, lower mandible fleshy; mouth black in summer, brownish-

pink in winter; legs pale fleshy brown, claws darker.

Field Identification .- A small brown Warbler with a fairly long graduated tail, in summer showing white in the outer feathers: it chiefly comes to notice from its habit of sitting on the top of a bush Distribution.-Throughout India from the Himalayas to Ceylon.

It is divided into two races in India and a third in Ceylon.

The northern race, P. s. gangetica, is found across Northern India from Gurdaspur and Jodhpur to the Duars and Midnapur. In this race there are distinct summer and winter plumages as described above. The Cevlon race, P. s. valida, on the other hand, has the summer and winter plumage alike, a darker brown above and a more vellowish fulvous below without white on the lateral tail-feathers. This is correlated with a breeding season that lasts the year round in the island. The typical race (Hyderabad, Mysore, Madras Presidency) lies between the two both in coloration and in the degree of difference between the two plumages. All these races are strictly resident.

Habits, etc.-This Wren-Warbler is more particularly a bird of broken boulder covered hills dotted with sparse and stunted vegetation of the cactus and thorn-bush type. It is also found in bush and scrubjungle, in light forest interspersed with grass or in grass on the edge of heavier forest. In such terrain it comes to notice from its habit of perching on a large boulder, on a dead bough, or on the top of an isolated bush or tree and there uttering a soft melodious but ventriloquistic call for some minutes at a stretch, repeating it again after a pause of two or three seconds. This call is a warbling pretty or tissipfrom it. Each pretty is preceded by a curious subdued ventriloquistic pit, uttered in a different key so that the song is really formed by a succession of triple notes. As soon as the bird has finished its song it descends hurriedly into the cover below with a quick jerky flight. It also has a peculiar habit of rising into the air for a short distance and making a noise (with the wings or beak I am not certain which) like a diminutive cracker, returning afterwards often to the same perch, sometimes to a fresh one. This habit is shared by Prinia inornata and socialis. The alarm-note at the nest is a loud pit pit pit pit pit. This species is wary and difficult to approach and the nest is readily deserted.

The breeding season in India is from July to the end of August. The nest is comparatively large and is placed in the centre of a thorn bush, usually on rocky ground, or in the middle of a tussock of coarse grass. It is a dome-shaped ball of grass with the entrance on one side and is often fairly conspicuous, as the outside is smeared over with white vegetable-downs and fibres or with cobwebs.

The clutch consists of four or five eggs. They are somewhat clongated ovals, of hard and fine texture with a fair amount of gloss, The ground-colour is a greenish or grevish stone-colour finely and often rather sparsely freckled with faint reddish-brown. In some eggs these markings are almost invisible. They are, however, usually gathered into a conspicuous zone round the broad end.

The egg measures about 0.75 by 0.50 inches.

THE INDIAN WREN-WARBLER

Description.-Length 5 inches, including tail 2 inches. Sexes alike. Summer plumage: Upper plumage dull earthy-brown, the wings and tail edged with pale fulvous; the tail long, graduated and cross-rayed; dark subterminal spots on the feathers are hardly visible except from below. A ring round the eye, and a line above it dull whitish; the whole lower plumage pale buff,

In winter plumage the whole of the upper parts, wings and tail are more rufous in tint, and the tail is an inch longer.

the base of the lower mandible fleshy; legs flesh colour.

small, with a long tail; dark brown above, buff below, appearing rather dingy in the field; black beak noticeable in summer; makes a curious snapping noise in flight. To be distinguished from the Ashy Wren-Warbler by its dingier plumage and by having the crown brown

Distribution.-The Indian Wren-Warbler is found throughout the Indian Empire south of the Himalayas, in the outer fringe of which it occurs up to about 4000 feet, and it also extends farther to the east. It is divided into several races: P. i. franklinii. in the Nilgiris, Palnis and probably also the Travancore range, and P. i. insularis, Ceylon, are very dark in colour, the latter having a very large beak, and showing no difference between the summer and winter plumages. In the typical race found in Central and Western India, the summer and winter plumages differ as described above. This race grades on the one hand into the paler and more brightly coloured P. i. terricolor of the North-west Frontier Province, Puniah. Sind, and the United Provinces, which has also a much longer tail

in winter. P. i. fusca of the Nepal and Sikkim Terai, the Duars and Upper Assam, is more saturated in colour with a more pronounced fulvous wash on the lower parts.

Habits, etc.-This quaint little bird is one of the commonest of Indian resident birds, though from its small size and skulking habits it does not attract much attention. It is particularly a bird of standing crops, sugar-cane, wheat, millet, and the like, and it is also partial to long grass; in bushes and other low cover it is sometimes found but not so commonly. Bare ground and forest are abhorrent to it. Like others of the Wren-Warblers, it is a poor flier, its top-heavy labouring flight being almost laughable. As is indicated by the large strong legs, its chief mode of progression is on foot, and it spends its life climbing about the stems of the cover in which it lives, threading its way about with dexterity; when disturbed in the crops it rapidly progresses from stem to stem, then takes to flight over the top of the seed-heads, flies heavily for a yard or two, and finally plunges back into the midst of the cover, where it again commences to climb and hop rapidly along. As it flies it makes a snapping noise almost like the crackle of an electric spark,

While in no sense a migrant, its dependence on crops for cover necessitates a certain amount of local movement according to season. Its skulking habits render it indifferent to the presence of man, and it occurs commonly in the vicinity of houses and villages and in gardens. The food consists of insects.

The song of this bird is a familiar sound in the cultivation, where it lives. It makes up in vigour for what it lacks in beauty, consisting merely of a series of loud jingling wheezy trills, that rather suggest the shaking of a bunch of keys,

The breeding season lasts from March to September.

The nest is a very elegant and distinctive structure, globular or a long purse-shape, domed, with the entrance high on one side; it is semi-transparent, being made of a regular lace-work of fine strips torn from the blades of green grass, woven in and out, and anchored here and there with similar grass-work to the surrounding stems and leaves. There is no lining. It is placed from 3 to 6 feet from the ground in standing crops or clumps of sarpat grass or thorny

The eggs, too, are very distinctive and beautiful. They are a moderately long oval, with a strong shell, fine in texture and highly glossy. The ground-colour is pale greenish-blue (or rarely pinkishchocolate and reddish-brown.

The egg measures about o.61 by o.45 inches.

This bird is a favourite foster-parent for the Indian Plaintive Cuckoo (Cacomantis merulinus).

THE FAIRY BLUE-BIRD

IRENA PUELLA (Latham) (Frontispiece, Fig. 2)

Description .- Length 10 inches. Male: Deep velvet-black except for the top of the head and neck, the whole upper plumage, the lesser wing-coverts and a faint bar on the wing and a patch under the tail shining ultramarine blue with lilac reflections.

Female: Dull peacock-blue, the feathers with dark shafts; wings and tail blackish-brown washed with peacock-blue.

Iris crimson : eve-rims pinkish ; bill and legs black.

Field Identification.-Eastern Himalayas and the hills of Assam and South India. Male quite unmistakable, deep black with shining blue upper parts. Female dull peacock-blue throughout. Found in parties in high trees. Has a very characteristic call. Distribution.-The species is found in Ceylon, India, Burma, the

Andamans and Nicobars, the Malay Peninsula and Siam, Annam and Cochin-China. In India we are concerned with two races. The typical race is found in Ceylon and in the Western Ghats from Travancore to Belgaum and in the Chitteri Hills of the Eastern Ghats. In these hills it is found from their bases up to about 5000 feet. A slightly larger form, I. p. sildeimensis, is found at the edge of the plains in the lower ranges of the Himalayas from Sikkim to the Miri Hills and in the Khasia Hills, Cachar and Manipur in Assam.

Habits, etc.- The Fairy Blue-Bird is a forest-haunting species and it is more particularly a bird of the evergreen forest. Except in the breeding season it collects into small parties of five or six individuals and more rarely into flocks of anything up to thirty or forty birds. These frequent the tops of high trees though they occasionally come down into the undergrowth and in the middle of the day habitually descend to the banks of streams and small rivers in order to drink and bathe. They are very bright and lively birds always on the move. hopping from branch to branch and flying from tree to tree, uttering a very distinctive call as they go. This is variously described as a pretty bubbling whistle, a pleasant musical weet-weet or a rich mellow percussive whats-it repeated every few seconds.

This lovely bird is by no means as conspicuous as one would imagine from looking at a stuffed specimen. Indeed in shady forest the male generally looks as black as a Drongo or from its movements might be mistaken for a Thrush and its satin-blue back is only conpiece of open jungle. Females and the similarly coloured young males compose many of the parties and these are tame enough, allowing a close approach as they feed quietly on berries regardless of the observer. Adult males are rather shyer.

The food is said to consist almost exclusively of wild fruits and berries. When the various fig-trees are in fruit numbers of Blue-Birds congregate to feed the company with Horabilis and Pigeons and other fruit-cating birds. The nectar is also sipped from Erybrins trees and the pollen from the flowers will often be seen on the faces of the birds.

The breeding season ranges from January to May, but most eggs will be found in March and April.

The nest is usually built in a sapling between 10 and 20 feet from the ground and the sapling chosen is in the depth of damp forest where tall trees exclude the sun. The nest is a shallow saucer of roots, twigs and bents, usually intermixed with green moss and with an outer cover of the same.

The normal clutch consists of two eggs. The shape is a blum oval and the texture is close-grained and fine visual consistency. The The ground-colour is greenish-white, streaked, spotted and blotched with reddish-brown and inhy-grey and underlying paler shades of the same. The blotches are usually beavy and often are almost entirely confluent over the lareer end.

The egg measures about 1.10 by 0.75 inches.

THE GOLDEN ORIOLE

ORIOLUS ORIOLUS (Linnæus)
(Plate viii, Fig. 3, opposite page 176)

Description.—Length 9 inches. Male: Rich golden-yellow except a broad line through the eye, practically the whole of the wings and the central portions of the tail, which are black.

Female: Upper parts yellowish-green; wings brown, the feathers tipped and edged with greenish; tail brownish-black tipped with yellow; under parts whitish, washed with yellow and streaked with dark brown.

lark brown.

Iris dark crimson; bill dark pink; legs dark slate.

The tail is slightly rounded.

Field Identification.—Shy and purely arboreal species, concealing itself in thick foliaged trees, its presence revealed by the liquid whistle wiel-a-teo. Male, a glorious golden-yellow, with black wings and tail; female greenish with dark wines and tail.

Distribution.—The Golden Oriole is widely spread over Europe, Africa and Asia. The typical race just skirts Sind and Baluchistan on passage, but within our area we are really concerned with only one form, O. o. handoo, which differs chiefly from the typical near in the fact that in the adult male the black of the lores, i.e., the eyestripe, extends behind the eye. This form breeds in Turkestan and Gilgit, in Southern and Eastern Afghanistan, in the lill areas of Baluchistan, throughout Kashmir and the Western and Central Himalayas, and in the plains from Rajputana to Western Bengal and south to Mysore. It winters also as far south as Cape Comorin.

In the mountain areas and in the northern part of the plains of India the Golden Oriole is merely a summer visitor, moving farther south in August and September and returning to its breeding grounds in Arril and May.

In the Himalayas it is found up to 10,000 feet, though in the

Habita, etc.—With the ripening of the mangoes in spring the Golden Oriole arrives in Northern India. To that circumstance, combined with the resemblance of the greens and yellows of the two sexes to the fruit and leaves of their favourite tree, is due the popular Anglo-Indian name of Mango-bird. Orioles are strictly arboreal, descending, as a rule, neither to undergrowth nor to the ground, and by nature they are very shy and secretive, keeping to the thickest portions of the boughs and being better known as disembled voices than as birds; for the strictly are strictly arboral to the strictly arboral

ong sustained, as the bird prefers to travel from tree to tree.

The food consists of insects, caterpillars, berries and fruit.

The breeding season ranges from May to August, but the great

majority of eggs are laid in June and July.

The nest is built in some large tree, usually at a height of over 20 feet from the ground. It is a moderately deep cup, suspended invariably within a selender fork towards the extremity of one of the boughs, and often in a situation where no climber can reach. From below it looks like a round hall of grass wedged into the fork, and the sitting bird within is completely hidden; but in the hand it proves to be a most beautifully wowen cup, hung from the fork of two twigs and secured to them, much as a prawn net is to its wooden framework. The cup is deep and rounded to prevent the eggs relling out in a high wind. It is composed of fine grass and selned strips of tenacious bark fibres, and the ends of these are wound round and round the supporting twigs. Some nests contain no extraneous matter, but others have all sort of odds and ends.

woven into the fabric, scraps of newspaper, rags, shavings, snakesloughs, thread, and the like. There is always a neat lining of fine grass stems. There is some variation in the thickness and size of the nests.

The clutch consists of two to four eggs. These vary a good deal in shape and size, some being pyriform, and others long and cylindrical; the texture is fine and with a high gloss. In colour they are a pure china-white; the markings consist of well-defined black spots and specks more or less thinly sprinkled over the surface of the egg, chiefly at the large end. In some cases the spots are pale yellowish-brown or deep reddish-brown, often surrounded with a nimbus of the same colour.

The eggs measure about 1.10 by o.80 inches.

THE BLACK-HEADED ORIOLE

Description.-Length 9 inches. Sexés alike. Bright goldenyellow except the following parts which are black, the head, chin and throat, the greater portion of the wings, the shafts of the tailfeathers and a patch on the tail formed by the ends of the two (or three) central pairs of tail-feathers.

In immature plumage both sexes have the black of the chin and throat replaced by black and white striping.

Iris crimson; bill deep pink; legs plumbeous.

Field Identification .- Arboreal; abundant in well-wooded plains. A bright golden bird with black head, wings and tail, which is very active and noisy in the trees.

Distribution.-The Black-headed Oriole extends through the greater part of India, Ceylon, and Burma eastwards to Cambodia and Siam. We are concerned with three races which differ in size and the amount of yellow edging to the wings and to the feathers of the forehead and crown of immature birds. The typical race inhabits the sub-Himalayan ranges from Kangra to Upper Assam, as well as the Gangetic plain. O. x. maderaspatanus inhabits India south of the Gangetic plain with a western limit of Mount Aboo and Kathiawar. O. x. ceylonensis is confined to Ceylon. Resident

Along the Himalayas from Kulu eastwards is found another handsome species, the Maroon Oriole (Oriolus traillii), the colours of which are sufficiently suggested by its name.

Habits, etc.-This Oriole is a common bird in fairly well-timbered

but open country, being specially partial to groves, avenues and gardens. It is an arboreal species, though occasionally it descends to the ground to capture insects, on which it feeds freely, though its chief food must be considered the fruits of the various species of wild figs. It is found solitary or in pairs, though the family parties keep together for a short time after the young are fledged.

These Orioles are very active creatures, full of the joy of life, and they delight to indulge in aerial games, following each other from tree to tree, darting through the foliage with their bright plumage flashing in the sun. They have a range of melodious notes, freely uttered on such occasions, and the pairs call to each other incessantly vũ-hũ-a-yu, answered by tũ-hu-ẽể or te-hễể. In addition to their varied range of melodious calls they sometimes utter harsh cawing notes, and the newly-fledged young have a churring cry rather like

The breeding season lasts from April to the end of August. The nest is a deep cup, carefully suspended between two twigs, and is composed chiefly of tow-like vegetable fibres, thin slips of bark and similar materials; externally it is decorated with scraps of lichen and bark, and there is a lining of fine grass or fine twigs of tamarisk. It is suspended near the end of a bough at heights of 20 to 35 feet

The normal clutch consists of three eggs, but two to four are found. The egg is a somewhat elongated oval, fine in texture and moderately glossy. The ground-colour varies from creamy- or pinkish-white to pale salmon-colour. The markings consist of spots and streaks of dark brown and inky-purple, sparingly distributed, and generally towards the broad end; some of the

The average size of the egg is about 1-14 by 0-82 inches.

THE INDIAN GRACKLE

GRACULA RELIGIOSA Linnaus

Description.-Length 10 inches. Sexes alike. The whole plumage black glossed with green and purple, a patch of white in the base of

Iris brown; bill orange-red with a yellow tip; wattles and facial skin bright yellow; legs orange-yellow, claws blackish-brown.

The sides of the face and the nape are ornamented with bare fleshy wattles which differ in shape in the various races.

Field Identification.—A large black Mynah with yellow bill and legs, yellow wattles behind the eyes and a white patch in the wing. Noisy and tree-haunting, usually seen in parties in large trees.

Distribution.—A resident species with some local movements. This Grackle is widely distributed in India, Ceylon, Burma, the Malay Peninsula, Sumatra, Java and Borneo. It is divided into several resident of the property of



Fig. 27-Indian Grackle (% nat. size)

the patch of feathers in the middle of the wartle below the cyc is small and narrow and does not reach to the lower edge of the wartle. Gr., indice is found along the Western Ghast from North Kanara to the extreme south at all heights up to goo feet and also in Ceylon. This is a smaller bird with a weaker bill. The wattle ends in a small inconspicuous lobe and then turns upwards no to the nape in a tongue about a quarter of an inch long; the patch of feathers in the middle of the wattle is rather larger than intermedia and reaches the bottom edge of the wattle is rather larger than intermedia and reaches the bottom edge of the wattle is rather larger than intermedia and reaches the bottom edge of the wattle. Gr., positionalaris is a connecting link found in Sambalpur and in the Northern Circars from Games or Bastar. From indice it is immediately distinguished by the absence of the tongue of wettle from the nape to the crown. It is smaller than intermedial of weather from the nape to the crown. It is smaller than intermedial

Grauda ptilogeny in Ceylon has no wattle on the side of the face, only a long pendant lole on each side of the nape. This appears to be another races of Grauda religious which has either reached the status of a full species or whose original range has been upset by the deforestation of the island, so that both it and G_c , r. indica are now found ittings side by side in many localities.

Habits, etc.—This Grackle is a tree-haunting species found in all

types of forest, whether evergreen or deciduous, in the shade trees of coffee and other planations and in trees near cultivation. Out of the breeding season it is found in small parts and focks which keep very largely to the tops of the trees us the three trees to the lower boughs to investigate some local investigates to the lower boughs to investigate some local investigates on the properties of the pro

The food consists of insects, fruits and berries collected upon the trees, but termities are captured on the wing. This species is very partial to the nectar obtainable from the flowers of trees like Bombax, Erythrina and Grevilla and in such trees will be found in loose association with Hornbills. Barbets and Grere Piecons.

The breeding season is mainly from February to May but a few nests may be found later until Othen. The nest is a miscellaneous collection, sometimes very small, of grass, feathers, dirt and touchwood in the bottom of a hole in a tree from 10 to 36 ref from the ground. The tree chosen is by preference a dead one, too rotten and unsafe for a man to climb, and it is usually in open ground either in cleaning in a forest or in cultivation. The nest hole is generally in the trunk and may be executed by the Gradeli itself.

The clutch consists of two or three eggs. In shape these are very regular ovals, the shell being very close and fine but with little gloss. The ground-colour is a delicate pale sea-green or greenish-blue, more or less profusely spotted and splashed with pale purple,

The size of the egg is rather variable, but it averages about 1-30

THE ROSY PASTOR

on noerus (Linnaus

Description.—Length 9 inches. Sexes alike except that the female is duller and with a shorter crest. The whole head, long husby crest, throat, upper breast, wings, and tail glossy black, the feathers lightly tipped with buff; thighs, a patch on each flank and under thail black tipped with white; remainder of the plumage rose-colour.

Iris brown; bill pink with the basal half of the lower mandible black; legs pink.

Field Identification.—A handsome crested bird, rose-pink with black head, wings and tail; found in flocks which behave like and in the distance look like flocks of Common Starlings; very abundant; the flocks feed on the ground and perch in trees.

Distribution.—The Rosy Pastor breeds through a wide area in South-eastern Europe, occasionally as far west as Italy and Hungary; and in Asia from Asia Minor to Turkestan. It winters in India, and wanders also irregularly through the greater part of Europe. In



Fig. 28-Rosy Pastor (4 nat. size)

India it is found as a winter visitor through the whole of the plains to as far east as Manbhoom in Western Bengl, being especially abundant in the north-west. It arrives early in July and leaves about May, being absent as a species, therefore, for a very short time, though doubtless the latest birds to depart are far from being the earliest to return.

The Spotted-wing Stare (Psaroglossa spiloptera) found along the base of the Himalayas is common in Assam. The silvery upper parts with brown scale marking, dark chestnut throat, bright rufous under parts and white spot in the wing are distinctive.

Habits, etc.—The Rosy Pastor greatly resembles the Common Starling in its habits while in winter quarters in India. It collects in flocks which feed on fruit and berries, grubs, insects, grasshoppers, and locusts (being particularly useful in the destruction of the last)

in every type of open country, though cultivation and grassy lanks are chiefly preferred. These flocks associate with the flocks of Common Starlings and Mynahs, roosting and feeding in company with them, though as a rule the three species do not join into a common flock; and these flocks may be seen flighting between the roosting places and feeding grounds in the morning and evening very regularly. When light and distance do not allow of the distinguishing of colour it is impossible to recopies apart the flocks of Starlings and Pastons, the build, size and flight of the two species being greats is being irrigated a pink and black cloud of these brink will often be seen in pursuit of the flooded-out insect life, quarrelling and chattering and jumping fint to the air as they move along.

On their first arrival numbers of the birds are in the brown juvenile plumage, and at all seasons the flocks contain not fully adult

From March onwards the birds are affected by the approach of the breeding eason (as the state of their internal organs testifies), and the flocks spend much of their time in tall trees, enjoying the sun and singing a typical Starling song, a jumble of disordant grating noises mixed with some medicious warbling notes. At this season they become very fat in preparation for migrating and are eagerly pursued by native aportamen, whose aim is to secure as many as consulte with a single shot.

The breeding season in Europe and Asia is in May and June. The brids breed in huge colonies on rodg ground or in old ruise. The brids was a sufficiency of holes in which to place the untilly masses of grass, twigs and straw which from the enters; the egg cavity is lined throats and feathers. Such breeding colonies move about in the most capricious manner, occupying a suitable locality one year and abandoning it the next, their movements being colonies are the food-august of the place of the food-august on the food-august).

The clutch consists usually of five or six eggs. These are very pale bluish-white, unmarked, similar to but paler and more glossy than those of the Common Starling. In shape they are rather pointed ovals, hard in texture with minute pores.

They measure about 1.10 by 0.80 inches.

(Plate vi, Fig. 3, opposite page 120)

Description.-Length 9 inches. Sexes alike, except that the female is generally duller and more spotted. Winter plumage Black, the feathers lightly tipped with buff; wings and tail brown, edged with velvety black. The whole plumage is irridescent, with a high gloss of red, purple, green, and blue. The feathers of the head, neck and breast are developed into hackles. In summer the buff tips wear off, leaving the plumage more completely black.

Iris: male dark brown, female pale vellow: bill brown, base of lower mandible steely or yellowish-horn, in breeding plumage lemonvellow; legs reddish-brown, claws darker.

Field Identification.-Gregarious, and collecting in large flocks in winter, which feed on the ground in cultivation and perch in trees.

A glossy black bird, looking rather as if oiled, and more or less spotted finely with buff.

Distribution.-The Starling is a bird of very wide distribution in Europe, Asia and Africa, the typical race being one of the best known of English birds. It is divided into a number of closely allied forms, whose differences lie in the distribution of the colours of the brilliant gloss which gives the bird a curious highly-oiled appearance. The distinctions are small, but must be recognised as they are correlated with distinct breeding areas. The winter ranges of several forms, however, overlap, with the result, as the birds are highly gregarious, that several forms may then often be found in one flock, a fact which causes the uninitiated to believe that the differences exhibited by different specimens are purely due to

The identification of Starlings is normally a matter for the expert, and many intermediate specimens occur which cannot be definitely attributed to any particular form : while no two authorities agree on the number of forms to be recognised. But for general purposes the majority of Starlings met with in India belong to four races. They may be distinguished as follows (the colours refer to the gloss; the wing is measured in millimetres closed from the bend of the shoulder to the tip of the feathers):

S. v. minor .- Small form, wing 110-118 mm.; head, throat and car-coverts green; mantle and rump reddish-purple.

S. v. humii.-Medium form, wing 119-125 mm.; head deep purplish-blue; reddish-purple on the throat, chin and hind neck; ear-coverts deep metallic green; mantle coppery-red to bronze;

S. v. poltaratshyi. Large form, wing 124-135 mm.; head, throat

and ear-coverts purple; mantle and rump green. S. v. porphyronotus.-Large form, wing 125-137 mm.; head and

throat green, ear-coverts more or less purple; mantle and rumn

S. v. minor is a local and resident form in Sind. S. v. humii is the breeding bird of the Valley of Kashmir; in winter it appears in the bordering districts of the Punjab. S. v. porphyronotus breeds at Yarkand and neighbouring areas, and in winter visits Afghanistan, Kashmir, Punjab, Sind, and the United Provinces. S. v. poltaratskyi breeds in Siberia, and in winter extends through the plains of India from the north-west to Bengal and south to Baroda, being the commonest of the Indian Starlings.

In the plains of India these Starlings may be looked for from October to March, but occasional parties occur a little earlier and

Habits, etc.-Apart from the fact that the little Sind Starling may be recognised by its smaller size, and both it and S. v. humii impossible to distinguish the various forms of Starling in-India in winter until they have been shot. They are highly gregarious, and collect into common flocks which feed in cultivation on the open plains, sometimes also in company with Mynahs and Rosy Pastors. The chief characteristic of the flocks is hurry; they feed on the ground, digging their bills into the crevices of the soil and extracting the various harmful grubs and insects on which they feed; and all the time the flock advances with a bustle and hurry, not hopping but with a quick purposeful step, the birds in the rear frequently flying over to settle in front of the leaders. Fruit, berries and grain

When disturbed the flock flies up and settles on the tops of trees, where, if no danger threatens, the birds at once commence to warble in the sunlight and preen their feathers, soon flying down again to continue their progress on the ground. The flight is swift and strong, short, sharp beats of the wings alternating with periods of gliding, the flocks flying in close order as if drilled, the mass wheeling and turning with remarkable precision. Some of the flocks are very large and by their flight and density can be identified from a considerable distance.

The breeding season of S. v. humii in Kashmir is in April and May. The males then indulge in the peculiar wheezy, squeaky song, sitting on a roof or top of a tree in an exposed position, flirting the The Starling builds in holes of trees (particularly affecting pollarded willows), in river-banks and in buildings, constructing a loose nest of grass roots with a few feathers. The clutch consists of five or six, eggs. These are somewhat clongated in shape, a good deal compressed towards the short end. The shells are strong and glossy, with the surface a good deal pitted. In colour they are a very uniform pale sea-green-blue.

The average measurement is 1-13 by 0-83 inches.

THE GREY-HEADED MYNAH

STURNIA MALABARICA (Gmelin)

Description.—Length 8 inches. Sexes alike. The whole upper plumage dark grey, the feathers of the head and neck long and pointed with whitish shafts giving a hoary appearance; wing blackin, that lib tut the flight-feathers, which are merely so tipped, edged with silvery-grey; tail blackish tipped broadly with ferruginous, the central stronger plant of feathers silvery-grey; entire lower plumage rufusu, settle towards the chin and throat which are streaked with whitish-grey and deepest towards the tail.

Iris light blue; bill blue at base, green in the middle, and yellow at the tip; legs brownish-yellow.

Field Identification.—A rather silvery-looking bird with finely-hackled head and neck, rufous under parts, and dark wings and tail.

Distribution,—A widely-distributed species in the plains of India, extending castwards to Siam, the Malay Peninsula, and the islands of the Bay of Bengal. It is divided into several races, of which we are concerned with two. The typical form is found east of a line drawn approximately from Mount Aboo to Dehra Dun, secending the Himalayas to a height of about 2000 feet. 32. m. héydrit, which has the best of the properties of the properties of the control of but there is not much information on the coint.

Habiti, etc.—This little Mynah is more purely arboreal than most species of Mynah and Starling, and is shyer and more difficult to observe. It is usually found in parties and small flocks which frequent the tops of trees and indulge in a good deal of squabbling and chasing about from branch to branch especially when the attraction is the flowers of the coral-tree or the silk-cutton tree. From these they extract the nectar and they are also fond of the figs of the banyan and peepal trees, the berries of lantans scrub and a number of other fruits as well as insects. At times the flocks descend and feed on the ground. The usual note is a sort of chatter, but there is also quite a pleasant sone.

The breeding season lasts from April to June.

The nest is built in a hole of a tree, either dead or living, at any height from 20 to 30 feet from the ground, and there is rather a preference for trees growing in open patches cleared in the midst of forest. Natural hollows and old Barber's nest holes are used, but in some instances the birds enlarge holes for themselves by pecking away decayed wood round an existing small hole. The nest is a small and of exas or erren leaves.

The clutch consists of three to five eggs.

The egg is a moderately elongated oval, rather pointed towards the small end. The shell is fine and delicate with a distinct gloss. In colour it is a very delicate pale sea-green without markings.

The average size is about 0.95 by 0.70 inches.

THE BRAHMINY MYNAH

Temenuchus pagodarum (Gmelin) (Plate vi, Fig. 5, opposite page 120)

Description.—Length 8 inches. Seese alike. Top of the head, including a long bushy crest, black; the sides of the head, the whole including a long bushy crest, black; the sides of the head, the whole and a patch under the tail which are white; the feathers of the neck, throat and breast are elongated into hackles. The remainder of the unper plumage grey except the outer fifthe-feathers which are black; tail rounded, brown, all but the central pair of feathers broadly tipped

Iris greenish-white; bill blue at the base, greenish in the middle, yellow at the tip: legs bright yellow.

Field Identification.—Common plains species. A rather small, sprightly bird, grey above, warm buff below, with the top of the head black and crested; the rounded tail is conspicuously edged with white in flight.

Ditribution.—This is a familiar bird throughout India and Ceylon, extending on the west to the Valley of the Indus and on the cast to the longitude of Calcutta. It is locally common everywhere except in the more arid and barrap protons of the Punjak, Sind, and North-west Frontier Province, and in the more hund and overgrown localities of Lower Bengal. In the Outer Himalysis extends ordinarily as a summer visitor put of 450 feet, that in Glight and

THE COMMON MYNA

Chitral it is common even to higher elevations. In the main a resident species, but also locally migratory.

Hobits, etc.—The Brahminy Mynah is partial to open, wellcultivated localities with plenny of trees, and is tame and familiar in its babis, neither avoiding nor socking the neighbourhood of man, but rather being indifferent to his existence. However, the metapart on the ground, often in company with other special off. Mynahs and Starlings, retiring when sated to the trees in which it normally lives. It is found singly, in pairs and in small parties. It is quite a good songster, with a pleasant warbling song and makes a charning pet; it is also a good mimic, learning the songs of other birds with

Under the name of "Pawi" or "Papaya" it is familiar to Indians and comes a good deal into their folk-lore.

The breeding season lasts from May to August, but in Upper India

the majority of eggs are laid in June.

The nest is placed in holes in trees at heights of from 15 to 30 feets above the ground, and also in Southern India in holes in the roofs of buildings. The cavity is roughly lined with feathers and dry grass, or dead leaves and similar soft materials. Nest-boxes affixed to trees are much favoured by this species.

The clutch consists of three to five eggs.

The egg is a rather elongated oval, fine and hard in texture, and rather glossy; in colour it varies from very pale bluish-white to pale blue or greenish-blue. There are no markings.

In size the eggs average about 0.97 by 0.75 inches.

THE COMMON MYNAH

(Introduction, p. xxviii)

Description.—Length 8 inches. Sexes allike. Whole head, not upper breast black; remainder of body plumage inch vinous-brown, darker above and paling into whitish on the lower abdomen. Outer flight-feathers dark brown, with a large white patch at their base; tail strongly rounded, blackish, all but the central pair of feathers broadly tipned with white.

Iris reddish-brown, flecked with white; bill and a fleshy wattle below and behind the eye bright yellow; legs yellow, claws

Field Identification.—One of the most general and abundant birds of India; to be seen walking about in pairs on the ground everywhere

in the plains. Rich vinous-brown in colour, with a conspicuous yellow face-wattle; in flight the rounded white-edged tail and a large white patch in the wings are conspicuous.

Distribution.—The whole of the Indian Empire except Northern Kashmir, Baluchistan and Tenasserim, south of Mergui. A darker form found in Ceylon is separated under the name of A.t. melanosterms, The Mynah occurs in the Himalayas up to 8000 feet and is a strictly sided except.

Of late years this species has been introduced into South Africa, Mauritius, New Zealand, and other countries, but not with happy results, as it has proved destructive to more interesting indigenous species.

Habits, etc.—The Myrash shares with the House-Crow the distinction of being the commonest and best-known bird in India, being found wherever man is found, in populous city or in lonely jungle village. But the House-Crow, with all his audicely, has an uneasy conscience and is ever in expectation of the moment when his ains will find him out. The Myrash, on the other hand, has no such feelings. He is always perky and self-confident, secure in his occupation of some particular best and ready to wage war on all who dispute it with him; and the appearance of a snake, mongoose or bird of prey is sufficient to collect all the Myraids in produce and is honely were harmonic produced and the produce of the contraction of the

Normally these birds live in pairs and there is a very obvious affection between them. They feed together on the ground, striding along with rapid, determined pases, stopping occasionally to peen each other's feathers or to indulge in a few quaint remarks or gesticulations expressive of extreme aelf-satisfaction. The voice is a strange mixture of harsh gurglings and liquid notes, help-levely, help-levely, help-levely, accompanied by a quaint, stiff bobbing of the head, generally close in front of the mate. If disturbed when feeding on the gound

the birds rise with a querolous note of alarm.

Several often collect into small parties, and at the frost these parties collect into large flocks which sleep in groves of trees after the most noisy and quarrelsome proceedings at they take up their places for the night. At intervals during darhness short bursts of chattering are to be heard. Such favourite roosting places are shared with House-Crows and Green Parrakects.

The Mynah is very omnivorous in its tastes; I have known them carry away the carcasses of small birds that I had skinned; house scraps, fruit, grain, earthworms, insects of all kinds, grasshoppers, crickets, caterpillars, and grubs are all eagerly devoured. Flocks

of grazing cattle and the various agricultural operations are invariable attended by a pair of these birds; and their services in the destruction of locusts and grasshoppers must be very valuable to the Zamindar

The normal breeding season lasts from June to August, and the nests being usually in a very hot position the birds leave much of the incubation of the eggs to the temperature of the air. They themselves feel the heat a good deal and may constantly be seen walking about, with their beaks gaping.

The nest is built in roofs of houses, and in holes in walls, trees and wells; and the birds readily adopt nest-boxes or chatties which may be hung up for their use. Occasionally the old nest of a Kite or Crow or squirrel is adopted and relined, and instances are on record of their building nests in a creeper or on the bough of a tree.

The nest is a shapeless and often large mass of miscellaneous material, straw, feathers, fine twigs, bits of cotton, strips of rag, pieces of rope and string, snakes' sloughs, and the like.

Three to six eggs are laid, but the normal clutch consists of four or five. They are rather long, oval, pear-shaped eggs, hard and glossy in texture, varying in colour from pale blue to pure sky-blue or greenish-blue, without markings. The small black spots that are sometimes found on these eggs are the work of parasites.

They measure about 1.20 by 0.86 inches.

THE BANK MYNAH

Description,-Length o inches. Sexes alike. The top and sides of the head black; the whole body plumage slaty-grey except the centre of the abdomen which is pinkish-buff; wing black, a patch of pinkish-buff at the base of the outer flight-feathers; tail strongly

rounded, black tipped with buff. Iris deep maroon-red; bill gamboge; a naked wattle beneath and behind the eye brick-red; legs yellow,

Field Identification.-Plains of Northern and Central India; gregarious; strongly resembles the Common Mynah in demeanour and general effect, but the wattle is red instead of yellow, the body plumage slaty-grey instead of vinous-brown, and the wing-patch and tips of the tail-feathers pinkish-buff instead of white.

Distribution.-A purely Indian species, found throughout the whole of the northern half of India from the Himalayas southwards to a line between Bombay and Orissa, and from the North-west Frontier Province and Sind to Eastern Bengal. Normally a plains species it ascends the Outer Himalayas locally, venturing into the sheltered valleys. A resident species, but wandering locally in obedience to the food-supply.

Habits, etc.-The Bank Mynah is often found in company with the Common Mynah and is very similar to it in habits, but differs in one or two important particulars. Although sometimes found in crowded market-places, scavenging on the ground amongst cattle and people, or wandering about busy station platforms, it is more a bird of cultivation and the open country-side, and is in particular addicted to the neighbourhood of water, feeding about the banks of rivers, in old water-logged brick-kilns and borrow-pits. It is also much more social in its habits, not merely flying, feeding and roosting in flocks, but also breeding in very definite colonies with a breeding economy quite different to that of the common species.

The breeding season lasts from the middle of April to the middle

of July, but most eggs will be found in May,

It builds almost exclusively in earthen banks and cliffs, in holes which it excavates for itself, always in the vicinity of water and generally over running water. A few small colonies also breed below the surface of the ground in the sides of wells, in holes in the brickwork or in tunnels driven into the sandy soil. The nest chamber is situated at the end of a tunnel some three inches in diameter and anything up to seven feet in length, and these tunnels usually twist about in all directions and also communicate with each other, so that a large colony may be a regular warren. In the nest chamber a loose nest of feathers, roots and grass is constructed, and it also often contains pieces of snake's slough.

The normal clutch consists of four eggs, but five are often laid.

The eggs are short and broad ovals, hard in texture with a high gloss. They are unmarked, of various shades of very pale sky-blue or greenish-blue, generally slightly darker in tint than the eggs of the Common Mynah.

In size they average about 1.05 by 0.82 inches.

THE JUNGLE MYNAH

ÆTHIOPSAR FUSCUS (Wagler)

Description.-Length 9 inches. Sexes alike. Top and sides of the head black; remainder of upper plumage ruddy cinerous-brown; wings black with a large white patch at the base of the outer flightfeathers; tail broadly rounded, the feathers tipped with white; lower plumage dark ashy-brown, whitish under the tail.

Iris bright yellow or blue; bill basal half bluish-black, remainder

orange-yellow; legs orange-yellow.

There is a curious erect tuft of feathers above the nostrils,

Field Identification.—A shy forest Mynah, chiefly found in hill ranges; to be recognised from the Common and Bank Mynahs by the darker plumage, the absence of a bare face wattle and by the tuft of erect feathers above the nostrils.

Distribution.—The Jungle Mynah is widely spread in the Himalayas, in portions of India and through Assam and Burma to Siam and the Malay Peninsula. It is divided into races, of which we are only concerned with two.

The typical race, slate-coloured above with a yellow iris, breeds throughout the Himalayas, from Hazara eastwards, from the foot-



Fig. 29—Head of Jungle Mynah (11 nat. size)

hills up to about 7000 feet. It is also found in Lower Bengal and the Chota Nagpur area to Bundelkund and Raipur.

A browner race, Æ. f. mahrættenis, in which the iris is grey, bluish-white or pale blue, occurs in the Shevaroys and down the Western Coast, chiefly on the Ghats, from Ahmedabad to Cape Comorin. Though abundant in many localities it is rather a local species. A resident bird in the main, but also a local migrant.

Habits, etc.—As its name denotes, this Myanh is properly a bird of the forest, though it often associates with the Common Mynnh, and frequents the neighbourhood of houses. Except when actually paired for breeding it is found in parties and flocks that feed mostly on the ground, taking to the trees when disturbed. In flight, habits, gait, and behaviour it greatly resembles the Common Myanh, even that it is neither so bold nor such a seavenger, and it is probably

The breeding season lasts from March to July, but most eggs will be found in April.

The vast majority of the nests of this species are built in holes in trees, generally in large trees at a considerable height from the ground; but nests may be found in holes in other situations, in walls and ruins, in chimneys, and in the thatch of old houses. The nest is merely a lining to the hole selected, and varies in size and materials, being a collection of fine twigs, dry grass, feathers, moss, wool, and the like.

There is a distinct tendency for the birds to nest in colonies.

The clutch varies from three to four eggs, but the majority of nests contain five eggs.

The egg is in shape rather a long oval, usually somewhat pointed towards the small end; the texture is hard and glossy. It varies in colour from that of skim milk to pale blue or greenish-blue, and there are no markings.

The average measurement is about 1-20 by 0-83 inches.

THE PIED MYNAH

STURNOPASTOR CONTRA (Linnæus)

Description.—Length 9 inches. Seess alike. The entire beas and neck black, except for an elongated white patch from the so of the beak through the eye backwards; upper plumage, wings and tail black or blackish-brown, except for the lower rump and a sun line along the shoulders white; remainder of lower plumage pale

Iris yellowish-white, eyelids and a bare patch in front of the eye orange; bill basal half deep orange, remainder white; legs yellowish-

Field Identification.—Common plains species in cultivation. A conspicuously pied black and white bird found in parties feeding on the ground and flying up into a tree when disturbed; an obvious Myrah in habits and bearing.

Dittribution.—The Pied Mynah is common and widely distributed in India and the Burnesc contricts to Java, being divided into several races, of which the properties of the pro

Habits, etc.—The Field Mynah differs from the Common Mynah in the fact that it is a bird of open cultivation, never entering in or perching on houses, though it may frequently be found in gardes. Wherever found it is common, living generally in small parties that Spend their time hunting over grassland where the pied plumage renders them conspicuous. Like the Common Mynah, this species is a frequent attendant on cattle, and on the grazing grounds of the Northern Circars vast flocks of several hundreds collect together.

In diet it is undoubtedly chiefly insectivorous, exching grasshoppers, crickes, and beetles on the ground, and extracting catepulase, ants, worms, and other insects from amongst the roots of grass. But it feeds, too, on fruits and berries, being very partial to the fruits of the genus Ficus, and it also does a certain amount of damage to crops. Like the Company Apashs, and indeed often in company



from May to August, but the majority of eggs are laid in June and July.

This species builds in

This species builds in trees, generally out in open fields, at heights of 10 to 30 feet from the ground; sometimes the nests are in colonies, numbers being placed in one large tree. The nest is a large clumsy lump of material, variable in shape, but usually domed,



Fig. 30-Pied Mynah († nat. size)

depending for safety not on concealment but on its position in the midst of thorns or towards the extremity of a bough; it is built of straw, grass and twigs, and roots and rags, the last often trailing in streamers below the nest. The egg cavity is thickly lined with feathers. Very rarely the nest is placed in a hole in a tree.

The eggs are four to six in number, but most clutches consist of five eggs. They are moderately broad ovals, a good deal pointed towards the small end, and there is a high gloss. In colour they vary from a delicate bluish-white to a pure though somewhat pale sky-but the blue being often tinged with green. There are no markings.

They measure about 1-10 by 0-82 inches,

THE DAVA WEAVED DIDE

PLOCEUS PHILIPPINUS (Linnæus)
(Plate xi, Fig. 2, opposite page 264)

Description.—Length 6 inches. Male in breeding plumage: An mask, including the sides of the head, chin and throat dark blacked brown; remainder of the head, chin and throat dark blacked plumage brownish-black, the feathers broadly margined with brown; yellow; rump and remainder of lower plumage fulvous; wings and tail dark brown, edged with fulvous.

Male in winter plumage, and female: The whole upper plumage is fulvous, streaked with blackish-brown, the streaks dying away on the rump; wings and tail dark brown edged with fulvous; a clear fulvous line over the eye; remainder of plumage clear fulvous, darker on the sides of the head, breagt and flanks.

Iris brown; bill yellowish-horn, becoming in the breeding male dark horny-brown, yellowish about the base; legs flesh-colour. Bill rather heavy and conical.

Field Identification.—Abundant plains bird, found in flocks; majority are fulvous birds streaked heavily with blackish on the upper parts, but males in the breeding season have a conspicuous dark brown mask emphasised by surrounding yellow; yellow on the breast distinguishes this from other species of breeding Weavers. Will usually be noticed in connection with long woven grass nests in the property of trees.

Distribution.—This Weaver is found in India, Ceylon, and Burma, extending eastwards to Siam, the Malay Peninsula, Java, and Sumatra.

The typical race is found throughout Ceylon and the greater of India, extending in the north-vest to about the line of the Sutlej. In the Eastern sub-Himalyan and Bengal it is replaced by P. p. barmonicus, which differs in the smaller extent of yellow on the throat and breast and in Tracis (Waver ja also locally migratory, Tracis (Waver ja also locally migratory).

Habits, etc.—As in the case of the Tailor-bird, our common Indian Weaver-bird is known by its nest or thousands who would never recognise the owner thereof. Out of colour the parties of Weavers would pass with most people as parties of Searness, and never be given a second thought, but when the male dons his yellow breeding plurhage and dark mask he is a handsome bird and seally recognised. This species avoids heavy forest and is really a bird of open cultivation where babool trees and palms stand in the midst of grasslands and arathe fields, damp and well-watered

localities being rather preferred. It feeds on seeds of various kinds, and does a good deal of damage in certain crops, though, like the Sparrow, it largely compensates for this by the caterpillars. grasshoppers, and various insects on which the young are fed. A colony of Weavers' nests is one of the most familiar and typical of Indian country scenes. The nests are long, graceful structures of woven grass, retort shaped, with the mouth of the retort pointing downwards to the ground. These nests hang in groups of ten or a dozen on a tree, suspended by short plaited ropes from the ends of the outer boughs, or in vacant spaces in the centre of the tree, and the soft greens and browns of the nests, the rounded swelling lines of their construction, contrasting with the hard yet feathery foliage of an acacia, form a picture of nature hard to beat. Large colonies may consist of fifty to a hundred nests, occupying several adjacent

The nests are built of strips of sarpat grass, rice-grass, plantain leaf, coir, jowar leaf or coco-nut fronds. These strips the bird prepares for itself by cutting a notch in the side of a blade of grass and tearing off the strip above it, a foot or two long. They are cut when green, and new nests may be recognised from old by their colour, and the same difference of colour betrays old nests which

trees: while many colonies are built in lofty palm trees, banging

like tassels from the crown of leaves.

have been repaired and used again. The construction of the nest has often been described, but Mr Salim Ali appears to be the first observer who has correctly unravelled the economy of a breeding colony. According to his account, the colony is founded by a number of fully adult males in breeding condition but still unmated. Each bird selects a suitable twig and winds a number of strands about it until a firm support for the intended nest is secured. From this depends a mass of strips which are worked up into a pendant loop to form the skeleton of the structure. Porches are built over the upper part on each side, one developing and broadening out later into the egg-chamber, the other which is not so bulgy being produced into the entrance tube. About the time that the egg-chambers are complete hen-birds begin to arrive in the colony and though the various cocks press their attentions on them it appears that each hen deliberately makes choice amongst the nests, accepting later the cock whose nest has pleased her fancy. Henceforth the female occupies herself with making the interior of the nest to her liking whilst the male completes the entrance tunnel. The egg-chamber is left unlined, but small pellets of mud are often worked into the walls, a habit of which the original significance if any appears to be lost. As soon as the nest is completed, the eggs laid and incubation started by the hen, the cock proceeds to build a second nest which in due course

is chosen by another prospecting female and the whole process is repeated till she too is safely on her eggs. If circumstances are

It will be seen that this account explains the fact, often recorded, that males are apparently considerably in excess of females in the colonies and also accounts for the unfinished "cock-nests," second or third nests abandoned by males in which the reproductive fervour is waning.

When entering the nest the bird flies straight up the tunnel without perching at the entrance.

The breeding season is rather extended, from April to November. but most colonies are occupied during the rains.

Two is the normal clutch of eggs, but three or four are sometimes laid. The egg is a rather long oval, somewhat pointed towards the small end: the texture is fine, and the colour is a dead glossless white, unmarked.

It measures about 0.82 by 0.50 inches.

Description.-Length 6 inches. Sexes alike. Winter plumage: Upper plumage blackish-brown, the feathers edged with fulvous; a yellow line over the eye and a short transverse yellow line on each side of the neck; wings and tail blackish-brown the feathers edged with fulvous becoming greenish on the edges of the quill-feathers; chin and throat white washed with pale yellow, the bases of the feathers blackish-brown; remainder of lower plumage pale fulvous white, the streaks and the breast washed with buff.

Summer plumage: In both sexes wear removes the fulvous edges of the feathers so that the upper plumage and sides of the head become dark brown, the chin and throat brown and the breast and flanks more harshly streaked; the yellow transverse line on each side of the neck disappears. In the male the crown becomes bright shining

Iris brown; bill brownish-horn, blackish in summer; legs pale

Bill rather heavy and conical.

Field Identification.-Plains of India. A streaked brown Sparrowlike bird with a yellow line over the eye and another behind the ear. In breeding plumage the male has a golden crown. Found in flocks usually in reed-beds.

Distribution.-India, Ceylon and Burma south to about Moulmein in Tenasserim: also in Java. The typical race is found in Java. Birds from India and Ceylon all belong to the race P. m. flaviceps which gives place in Burma to the dark richly coloured P. m. pequencie In India this Weaver is found throughout the whole area south of the Himalayas, but owing to its dependence on water and reed-bade the distribution is very local and the bird will not be found at all through considerable tracts of country.

An even more locally distributed species is the Black-throated Weaver-bird (Ploceus bengalensis) which is found here and there throughout Northern India down to Bombay and Bastar. It is very similar in plumage to the Striated Weaver-bird, but lacks the dark streaks on the lower plumage and has a black band across the breast.

Habits, etc.-There is little to say of the habits of the Striated Weaver-bird in distinction from those of the Common Baya except to emphasise that it is much more of a water-haunting species. As a rule, it only breeds where large stretches of water are choked with reed-beds or where rivers and canals exist whose banks are fringed with reed and rush or bordered with thickets of high grass. In such places it is often very numerous indeed, living and nesting in the reeds and feeding in flocks on the grass seeds or on insects found in the grass. Each individual colony is, however, small, consisting of some half dozen nests, and the colonies, though sometimes near to colonies of the other two species, are separate from them.

The breeding season is from July to September.

The nest is very similar in shape, materials and construction to that of the Baya. It differs from it, however, in one important particular. The nest of the Baya tapers above to a point and is suspended by that point alone from one twig or other support. The nest of the Striated Weaver is, on the other hand, suspended from some forty or fifty ends of the grass or rushes which are bent over by the birds and incorporated in the top of the nest giving it a cluster of supports and a clumsier and more massive appearance as regards the upper part. The tubular entrance is usually shorter in this species. Some nests have acacia flowers cemented to the nest with cow-dung

The usual clutch is of two eggs, but three, four and rarely five may be found. The egg is a moderately broad oval, a good deal pointed at the small end and of a perfectly pure, almost glossless white. The texture is fine and compact and the shell though thin is firm and

The egg measures about o 80 by o 58 inches.



1, Black-naped Flycatcher. 2, Dark-grey Bush-Chat. 3. White-throated Munia.

THE WHITE-THROATED MUNIA

UROLONCHA MALABARICA (Linnæus)
(Plate jx, Fig. 3, opposite page 208)

Description.—Length 5 inches. Sexes alike. Upper plumage and wings dull earthy-brown, except the outer flight-feathers which are black; upper tail-coverts white; tail dark brown, margined with rusty; remainder of plumage pale buffy-white, flanks faintly cross-barred with rusty.

Iris dark brown; bill plumbeous-horn, tinged with lavender below; legs pale purplish-pink.

Bill heavy and conical. Tail rather long, graduated and pointed. Field Identification.—A small, rather elongated brown bird, whitish below and on the base of the tail; found in cheeping parties in thorn scrub or feeding on the ground; rather tame and stupid; several together are often disturbed out of big grass nests.

Distribution.—The White-throated Munia is found in Afghanistan and Baluchistan, and it extends from the Himalayas (in Hazara and Gilgit) across to Eastern Bengal and south to Cape Comorin and Ceylon. It ascends the Himalayas up to 4000 or 5000 feet, and is a sedentary aspecies.

Several other Munias are locally common. The best known is along the Western Ghats, parts of the Madras Presidency, the Chota Nagpur area and much of the Outer Himalayas. This is blackish in colour with the runp and the lower parts from the breast white.

The Rufous-bellied Munia (Uroloncha kelaartii) is a familiar bird

in the Niguris.

Habits, etc.—The White-throated Munia has always seemed to me one of the dullest of our Indian birds; it has no migrations, no changes of plumage, no habits of interest, and in its breeding arrangements it has some of the failings that one generally expects

to find amongst dementicated brids.
It is a brid of open country, rather preferring and spots and the neighbourhood of thomy serub. It is found in small parties which are tame and dult, taking to flight in close order when disturbed and uttering a small cheek-the-the-to or tes-ten note. The bird lives on small seeds which it gathers often from the googness and varies very partial to feeding on the base of these birds are generally to crops like milited and the service of the second parties of the companion of the service of the service of the service of the parties of the notat and affording a hint as to the origin of the parasitic labits of other members of this family in Africa.

The nest is a large globular structure, composed entirely of grasses of various sorts, particularly their flowering heads. A small circular entrance, moderately well concealed and rather difficult to find, leads into the egg chamber, which is lined with finer grasses and vegetable downs. It is usually built in thorn bushes, about 5 to 10 feet from the ground, but occasional nests are placed in creepers or about the walls of houses.

The ownership of these nests seems somewhat loosely defined, as it is no uncommon thing for more than one hen to lay in the same nest. I have myself found twenty-two eggs in one nest, ranging from fresh to hard set, and twenty-five have been recorded; while four to eight eggs appears to be the normal clutch. Even when the structure is not being used for its proper purpose it is often tenanted as a dormitory, and six or eight of these small birds may be disturbed from it in the evenings. Both birds of the pair frequently broad the eggs together.

The main breeding season apparently commences with the rains and continues till the end of the year, but nests may be found in every month, and the species probably is very irregular in its breeding habits; young birds on occasion breed before they are a year old.

The eggs are pure white, spotless, and devoid of gloss; typically they are rather broad and perfect ovals, but there is a good deal of

They average about 0.60 by 0.47 inches in size.

THE SPOTTED MUNIA

UROLONCHA PUNCTULATA (Linnæus)

(Plate ii, Fig. 1, opposite page 24)

Description .- Length 5 inches. Sexes alike. Wings and upper plumage dull chocolate, barred on the rump with brown and yellowish and giving place to glistening yellow on the upper tail-coverts; tail fulvous yellow; sides of the head, chin and throat rich chestnut; lower plumage white, all the feathers except on the abdomen banded

with fulvous brown, giving a scaled appearance. Iris deep reddish-brown; bill bluish-black, paler below; legs

plumbeous. Bill heavy and conical. The tail is rather long, graduated and pointed.

Field Identification .- A small bird, easily identified by the white under plumage with dark scale markings, the chocolate upper plumage with yellow above the tail and the chestnut of the face and throat-Found in pairs and flocks perching in bushes and hedges.

Distribution.-This Munia is found throughout the greater part of India, Ceylon, and Burma, extending eastwards to China. It is divided into two races, of which we are only concerned with U. p. lineoventer. This is found throughout the Himalayas as far west as Dalhousie up to a height of about 6000 feet and in the continental ranges and the Nilgiris to their summits. It is found also throughout the plains except in the North-west Frontier Province, the Puniab, Sind, and portions of Rajputana. This race also extends to Western Assam. It is a local migrant.

Two species of Munia have black heads and chestnut upper parts and a black patch in the middle of the belly. The Chestnut-bellied Munia (Munia atricabilla) has the lower parts chestnut and is found along the base of the Himalayas, in Bihar and Orissa and in Assam. The Black-headed Munia (Munia malacca) has the lower parts white. It is found locally in South India up to the Central Provinces.

Habits, etc.-The Spotted Munia avoids heavy forest and the more barren plains, and is most numerous in open country where scrub-jungle alternates with cultivation, and the vegetation is luxuriant. In such places it is found in flocks which feed largely in low-seeding herbage and settle in the bushes, flying when disturbed in close order like a swarm of bees, with a curious petulant little note of kitty-kittyhitty. They are fairly tame and familiar and come freely into gardens.

The breeding season is usually during the rains in July and August, but in the Nilgiris it is more extended from February to

The nest is a big clumsy structure, shaped liked a melon, and very large for the size of the bird. The entrance hole is placed on one side and is often difficult to find, so untidy are the walls of the nest. It is wedged into the fork of a tree or bush at heights from \$ to 7 feet from the ground and occasionally higher, and the site is often prepared with a rough platform of the same materials as those of which the nest is constructed. These consist of coarse blades and stems of grass, rice, and barley straw, and leaves of bajera and jowar.

The egg cavity is lined with fine grasses and roots. The situation chosen is generally a thick thorny tree or bush, but creepers on houses and trellis-work in gardens are also favoured.

The clutch varies from four to ten eggs.

The egg is pure white, a somewhat elongated oval, fine in texture

It measures about 0.65 by 0.46 inches.

THE RED AVADAVAT

THE RED AVADAVAL

(Plate ii, Fig. 2, opposite page 24)

Description.—Length 4 inches. Male in breeding plumage: The whole body plumage, except a black patch from the abdomen to under the tail, crimson more or less mottled with the saby-brown bases of the feathers showing through; a patch above the base of the tail, and the sides of the neck, breast and body spotted with white; wings brown, the feathers nearest the body tipped with white; and

blackish, the outer feathers tipped with white.

In winter plumage the male resembles the female, but has a greyer

throat and upper breast.
Female: Upper plumage brown; upper tail-coverts dull crimson with minute white tips; wings and tail as in the male; a blackish mark in front of the eye; chin and throat whitsh; sides of the head and neck and the breast ashy-brown; remainder of lower plumage dull saffron, flanks washed with ashy.

Iris orange-red; bill red, dusky about nostrils; legs brownish-flesh.

Bill short and conical.

Field Identification.—A tiny bird found in flocks in damp areas and yellow both sexes much spotted with white. Well known under the name of "Lal" as a cage and aviary bird, netted in numbers for sale.

Distribution.—The Red Avadavat is found from India and Ceylon through Burma to Siam, Occhin-China, Singapore, and Java. It is divided into two races, but only the typical form occurs within our limits. In India it is found practically throughout the country from the foot of the Himalayas, which it ascends to about 2000 feet, down to Cape Comorin, and from Baluchistan and the North-west Frontier Province eastwards. It is, however, wanting in the more dry and barren plains of the North-west. In the Niligiris it ascends to 6000 feet. A resident species.

A closely allied species is the Green Munia (Sticorpiza formosa), in which green and yellow are the dominant colours, whilst the flanks are strongly barred. Widely distributed in a broad belt across the centre of the Peninsula.

Habits, etc.—This Avadavat is chiefly found in well-watered and well-wooded localities, and it is very partial to heavy grass jungless and patches of reeds and grass on the outskirts of jheels. In such localities it is found in flocks which perch on the heads of the tall flowering grasses, whence they fly in a cloud with their shall little

call-note when disturbed. They are very bright and lively in their demeanour, and being tame and confiding are easily captured in numbers, and make delightful pets. They are to be seen in dozens in the cages of the bird-catchers, and are exported in large numbers to Europe for sale to aviculturists.

The breeding season is very irregular and varies according to locality, so that nests may be found in every month of the year. The greater number, however, nest in the rains and early winter.

Two broods a year appear to be raised.

The nest is a large melon-shaped structure with the entrance at one side; it is built of grasses of various types and the cock bird often continues to add material to it after the eggs are laid and female is sitting. The cavity is lined with fine grass, downs, and sometimes with feathers. It is well concealed as a rule, being built in the bases of thick bushes or clumps of grass or reeds, never higher than 7 feet from the ground and often practically on.

The normal clutch consists of five or six eggs, but various numbers up to fourteen have been recorded, and probably sometimes two females lay in one nest.

The eggs are very fine and delicate in texture, without gloss, a regular oval in shape, often rather pointed at one or both ends. The

In size they average about 0.55 by 0.43 inches.

THE BLACK AND YELLOW GROSBEAK

Perissospiza icteroides (Vigors)

Description.—Length 9 inches. Male: The whole head, chin and throat, the wings and tail and the thighs dull black; remainder of plumage bright yellow, tinged with orange on the hind neck.

Female: The whole head and neck and the upper parts dull ashygrey, becoming more fulvous above the tail; quills of the wing and tail black, the inner wing-quills and the central tail-feathers washed with ashy-grey; breast ashy-brown; remainder of lower plumage high temper fulvous.

The bill is very heavy and conical in shape.

Iris brown; bill olive-green in male, horny-green in female;

legs fleshy-pink, claws dusky.

Field Identification.—West Himalayan form. A large heavily built with a heavy conical greenish beak. The male is bright yellow with black head, wings and tail, the female dull ashy-colour with fulvous under parts. Conspicuous when feeding on the ground but difficult to see in trees and usually found through its distinctive call-

Distribution.-A resident species in the Western Himalayas from Naini Tal to Hazara and Chitral; also in the Sufed Koh. It breeds in the afforested ranges in a zone between 6000 and 11,000 feet and in winter some drift lower to about 4000 feet.

It must not be confounded with the very similar Allied Grosbeak (Perissospiza affinis) which is found in the Himalayas from Hazara to Bhutan. In this the male has the thighs yellow and the yellow of the upper parts more orange. The female is a greener bird.

Both these Grosbeaks are easily distinguished by the bill from the Black-headed Oriole (Oriolus xanthornus) which many people confuse with them in spite of the different distribution (see p. 188).

Habits, etc.-This Grosbeak is a bird of the Himalayan forests where it is found in all types of forest both deciduous and evergreen. but more particularly in stretches of silver firs and deodars. It feeds a good deal in the undergrowth and on the ground, often venturing on to the roads, but otherwise keeps mostly to the highest trees so that it is more often seen than heard. For the call-note, tre-ter tre-ter or trekatree trekatree, trekup trekup, uttered by both sexes is one of the familiar sounds of a Himalayan forest or a Himalayan sanatorium. - The song note of the male is a pretty whistle, tre-trui, tre-trui or tra trui-tree. The feeding note is chuck chuck.

The food consists of the fresh shoots of conifers and the seeds from their cones as well as the fruits of shrubs and plants in the

Out of the breeding season the birds collect into parties and small flocks.

The breeding season begins in April and continues until July and perhaps even until September, but most eggs are certainly to be

The nest may be built at any height from 18 to 60 feet from the ground and the usual situation is against the main trunk of a conifer, preferably a spruce, deodar or silver fir. It is, however, on occasion built on a horizontal bough and also in a non-coniferous tree such as a yew, lime or wild cherry. The materials of the nest, which is a wide cup, are fine twigs, lichens and silvery plant-stems with often a certain amount of moss. The cup is lined with dry grass and rootlets.

The clutch consists of two or three eggs.

The egg is broad in shape and rather pointed towards the small end; the texture is smooth and hard with a slight gloss. The groundcolour is pale greenish-grey marked with numerous blackish-brown tangled lines, some thick and bold some very fine twisted and intertwined, in a zone round the broad end and more or less underlaid by faint inky-purple clouds. A few blackish-brown spots and odd streaks are also found on the rest of the egg's surface.

The egg measures about 1.00 by 0.08 inches.

THE COMMON ROSEFINCH

CARPODACUS ERYTHRINUS (Pallas)

Description.-Length 6 inches. Adult male: Entire body-plumage dull crimson, largely mixed with brown on the back and sides, and brightest on the rump, chin, throat, and breast; the lower parts grow paler posteriorly till under the tail they are whitish; wings and tail brown, edged with rufous,

In breeding plumage the margins wear off the feathers and so leave the bird a brighter crimson.

Female and immature male: The whole plumage olive-brown streaked with brown, wings and tail margined with ochraceous: a double whitish bar across the wing-coverts.

Iris dark brown : bill horny-brown : legs dusky brown.

Field Identification.-Found in flocks in trees and crops; a dull brown bird, the size of a Sparrow, streaked with dark brown and with a pale double wing-bar; a small proportion of individuals consist of

Distribution.-Widely distributed over Eastern Europe and Asia, the Common Rosefinch is divided into several races differing in the extent and brightness of the red colour of the males: opinions differ as to the validity of some of these races, but the majority of Indian birds certainly belong to the form C. e. roseatus. This breeds throughout the higher Himalayas and the mountains of Central Asia generally at heights of 10,000 feet and upwards. It is migratory, and after breeding spreads over almost the whole of India and Northern Burma, going as far south as the High Range in Travancore; it is most abundant in the central and western half of the Peninsula, while the South-eastern Punjab and Sind lie out of the main line of migration and only stragglers reach those parts. More data is required about the movements of this species, which arrives in the northern plains about September, and reaches Southern India at the end of November, and moves north again

Habits, etc.-During migration and in the winter months in India the Common Rosefinch is generally met with in flocks which are quiet and unobtrusive in behaviour, feeding as a rule in undergrowth or in millet and similar crops. They avoid heavy forest and are found in any type of open country, visiting gardens and the neighbourfeed very largely on the ground, flying up into trees when disturbed. The full-plumaged males are always in a minority, as first-year males The food consists of wild cherries, mulberries, and a variety of other seeds and fruits; buds and shoots are also caten. The bird is very fond of the watery nectar contained in the flower of the coral-tree, and particularly frequents that tree when in blossom.

Ordinarily in India the bird is very quiet, but on the apriagmigration the males commence their load pleasant song, which, albeit somewhat monotonous, is such a feature of the barren which, of Glight, Ladakh, Spiri, and other Tibetan areas. There, during the summer months the birds frequent and breed in the scanty patches of scrub usually in the vicinity of water.

The breeding season is from June to August. The nest is a cupshaped structure of grass lined with finer roots and stems and occasionally hair. It is placed in low bushes and the bird is a very close sitter, allowing itself almost to be caught rather than leave the nest

The clutch consists of three or four eggs. They are rather broad ovals, pointed towards the smaller end, and fine and smooth in texture. In colour they are a beautiful deep blue, with a few scrawls and spots of chocolate colour, some pale, some almost black.

They measure about o 80 by o 60 inches.

THE HIMALAYAN GREENFINCH

Description.—Length 5 inches. Male: A broad line over the eye, some nathings on the sides of the face, an indistinct collar round the neck, the runp and the whole lower plumage bright yellow; remainder of upper plumage greenish-brown mised with black and darkest on the head; wings dark brown, variegated with vellow, black and a little white; rail dark brown, all but the two

central pairs of feathers largely mixed with yellow increasing externally.

The female resembles the male, but is slightly duller with less vellow in the wing-coverts.

Iris brown; bill fleshy-horn, tipped dusky; legs brownish-flesh.

The beak is conical, sharp and pointed.

Field Identification.—Himalayan species; usually gregarious when breeding and gathering into flocks in winter; recognisable in the field by the pleasant twittering note, the habit of flying high in the air, and the yellow under parts, eye-streak and wing-markings.

Distribution.—A Himalayan species, found throughout the whole of that range. It breeds commonly but locally at heights from 4000 to 9000 feet, and occasionally higher to 11,000 feet, and in winter it wanders down into the foot-hills and the plains at their base. On the west it is common in winter in the Peshawar Valley.

and even appears in the Afghan Hills down to the Samana. On the east it has been found in Manipur, and is replaced by a darker race in the Shan States and Yunnan.

The well-known Goldfinch, conspicuous with its crimon face and golden wing-bar, is common in the Western Himalayas, Kashnir, and Baluchistan, coming down to the North-west Frontier Province and Northern Punjab in winter. It lacks the black head marking of the English species and belongs to the Asiatic species Carduelis consicers.

Habits, etc.—The Himalayan Greenfinch avoids heavy deciduous forest, and while breeding prefers to frequent patches of open deodar forest on hill-sides in the neighbourhood of cultivation.



Fig. 21-Himalayan Greenfinch (4 nat. size)

Several pairs breed more or less together in such suitable localities. Out of the breeding season the birds collect into flocks, often of soom size, and these flocks under about the lower hills in a very erratic manner, so that no regular calendar of their movements can be worked out. When in flocks they very definitely prefer open cultivation studded with trees, and their favourite food is the seed of the wild hempy which grows in large patches where buffalses have been kept. They are easily attracted to gardens by planting sumfowers, as they are very fond of the seeds of that plant.

The ordinary call-note is a cheeful virtier, Intelesis or tablethtath, rather reminiscent of the call of the English (Golffiench; it has also a very sweet-to-ned note, race-al. The song, on the other hand, is more like that of the English Greenfinch, a very amerous sounding secrees or trees-etertuh. The love light arts sudderly decreased in a latter bird. I have seen a bird flying past and extended high above the circle to a tree, with the yings spread and extended high above the The breeding season is late, compared with most Himalayan birds, from July to early October, and this is correlated with curious features in the moults of plumage.

The nest is a neatly-constructed cup of the familiar Linnet type, composed of fine grass roots, with a good deal of hair interwoven in the interior as lining, and the exterior is often blended with most assimilate it to its surroundings. It is usually placed in a deodar at any height from 3 feet upwards, and may be in a fork or clump of foliage close to the trunk or on the top of a vertical bough near its externity.

The clutch consists of three or four eggs.

The eggs are regular ovals, slightly pointed towards the smaller end; the texture is fine and delicate without gloss. The groundcolour is a very delicate pale sea-green, and the only markings are a number of fine black spots and specks, usually most numerous towards the broad end.

The eggs measure about 0.70 by 0.52 inches.

THE YELLOW-THROATED SPARROW

Gymnorhis xanthocollis (Burton)

Description.—Length 6 inches. Male: The whole upper plumage ashly-brown; wings brown, darker on the quilils, with two wing-bars, the upper whitish the lower buff, a chestmut patch above the upper bar; tail brown, narrowly edged with paler; chin dull white; a conspicuous yellow patch on the throat; remainder of lower plumage pale ashly becoming whitish on the abdomen.

The female has a less conspicuous yellow patch on the throat, and the chestnut patch on the wings is replaced with rufous-brown.

Iris dark brown; bill black or brown; legs greyish-plumbeous.

The beak is rather long, conical and pointed.

Field Identification.—Plains and lower hills. A alim bird, dull in plumage, with a chestnut patch on the wing and a bright yellow patch on the throat; arboracal and rather noisy in the summer; in winter collects into flocks which feed on the ground, flying into trees when discurbed.

Distribution—The Yellow-threated Sparrow extends from Iraq. Persia and Afghanistan almost throughout Iradia. It is divided into two races. The Persian and Afghan race, G. z. transfigge, distinguished by its pale coloration, extends into Sind and the Southern western Punjab, while the birds of the remainder of the Punjab are somewhat intermediate in character. The typical race is found throughout the rest of India down to Travançore, and on the eart to about Midnapur in Bengal. In the Himalayas and other ranges it ascends to about 4500 feet. While resident in the main it is also partly migratory.

Habiti, etc.—The Vellow-throated Sparrow is a common and generally distributed species in all open country, cultivation and barren land alike, but it avoids heavy forest, and is not a house bird; though it will nest in trees in gardens, and readily use nestboxes placed for the use of birds. It is essentially a Tree-Sparrow.



Fig. 32-Yellow-throated Sparrow († nat. size)

and spends most of its time in the upper branches of trees, where its monotonous chirping note recalls, but is different from, the chirp of the Common House-Sparrow. Ont of the breeding season it collects into large flocks, and these feed on the ground, searching under trees for their fallen seeds and for the seeds of grasses and weeds. It is very fond of the flowers of the wild caper, and its forehead is often

stained with their pollen.

It breeds from April to July and is probably double-brooded.

The nest is usually a mere pad of dry grass thickly lined with feathers, but, as with many species that breed in holes, it varies a good deal according to its site, and is sometimes quite a pretentious

structure built neatly of a variety of materials. It is placed in holes and hollows of trees, usually at a height of 15 to 20 feet from the ground, but sometimes much lower. The old nest-holes of Woodpeckers and Parrots are often appropriated.

The clutch consists of three or four eggs. They are moderately elongated ovals, rather dull and glossless in texture. The groundcolour is greenish-white, very thickly streaked, smudged and blotched all over with very dingy brown of a tint between sepia and chocolate.

In size they average about 0.74 by 0.55 inches.

Passer domesticus (Linnæus)

Description.-Length 6 inches. Male: Top of head ashy-grey. bordered from above the eye with chestnut which gradually encroaches until the whole hind neck, back and shoulders are chestnut streaked with black; rump ashy-grey; wings variegated chestnut and dark brown with two conspicuous pale bars; tail dark brown edged paler; a patch from the beak to the eve and a broad patch from the chin to the upper breast black; cheeks and remainder of the lower plumage white, tinged with ashy on the flanks,

In fresh autumn plumage the colours are somewhat obscured by ashy fringes to the feathers, but these gradually wear off.

Female: A pale rufous-white streak over the eve; upper plumage pale earthy-brown, streaked with black and rufous on the upper back; wings dark brown, variegated with rufous and with two whitish bars; tail dark brown edged paler; whole lower plumage ashy-white.

Iris brown; bill brown, black in the male in summer; legs

The bill is short and stout.

Field Identification.—Well known to everyone and almost universal, but it may be noted that the Indian bird differs from the European in the white cheeks of the male.

Distribution .- As is well known, the House-Sparrow is very widely spread through Europe, Northern Africa and the greater part of Asia; it has also been introduced into America and Australia, and many other places.

It is divided into a number of sub-species, of which we are concerned with two: P. d. bactrianus is the large, brightly-coloured breeding bird of the Inner Himalayas and Tibetan areas from 5000 to 15,000 feet. It is partly migratory, and large numbers visit the plains of North-western India in winter. P. d. indicus is smaller and from its haunts often a dirty looking bird. This race is found throughout India to Ceylon, Assam, and Burma. The birds of the Outer Himalayas are intermediate between the two races

In the stations of Quetta and Darjeeling the Tree-Sparrow (Passer montanus) is common about houses. It is distinguished by the black spot in the middle of the white cheeks and the fact

that the female does not differ from the male,

Habits, etc.-There can be no bird that is more universally known and recognised than the House-Sparrow. It avoids heavy usually abundant, dependent only on food-supply; and its foodsupply is generally connected in some way with man, on whom it has virtually become a parasite. The larger and more prosperous a city or village the more the Sparrow flourishes, and in the open shops and houses of the East it is only considered less of a pest than rats and mice, because it is less offensive to eye and nose. In the food shops it pilfers every variety of grain and cake, pattering over the floors, delving into the dishes and sacks, ejected one moment and returning again the next with undiminished ardour. In private houses it comes in more for shelter than for food, searching for nesting places in the rafters and on the walls, littering the whole place with a selection of the varied assortment of rubbish that in its eyes is the most suitable nesting material possible. And in private houses, having more leisure and inclination for song, it makes a further nuisance of itself with the noisy and incessant chirruping which serves it for that purpose. For the breeding note is a rather shrill chissick, differing but little from the ordinary tchirp of daily life.

But, like all true townsmen, the Sparrow likes an occasional holiday in the country, and it times its holidays to coincide with the opportunities of visiting ripening corn or fruit in huge flocks which often do a considerable amount of damage. But in fairness credit must also be given for the considerable number of insect pests which are certainly destroyed by the Sparrow, who feeds its callow chicks to a large extent on insects and caterpillars.

Nests may be found in any month in India, and more than one brood is certainly reared in the year; but the main breeding season

The nest is a large, shapeless structure, based on an oval and domed plan with an entrance on one side, stuffed into any sort of hole or cavity available, provided that it has some connection with the works of man. Trees are on the whole seldom used in India. Grass, straw, rags, wool, and any other materials available are used in the construction of the nest, and the egg chamber is thickly lined with feathers.

The clutch usually consists of four or five eggs. They are rather clother are the relative to the state of the clutch with a slight gloss. The colour is every variable, and the eggs in one clutch often vary amongst them, selves, one egg usually being much lighter than the rest. The ground-colour is greyish- or geneinsh-white, generally finely and uniformly spotted with dark and light shades of ashy-grey and brown. In some eggs these markings are replaced by big blothes and spost.

In size they average about o 80 by o 50 inches.

THE CINNAMON SPARROW

PASSER RUTILANS (Temminck)

Description.—Length 5 inches. Male: Upper plumage and lesser wing-coverts bright cinamon-rufous, streaked with black on the back; wings black edged with rufous and fulvous and with a white wing-bar; tail brown with narrow greenish margins; as an all black patch from the bill to the eye; a patch behind the eye pale yellowish-white; chin and threat black, with a bright yellow patch on each side of the throat; lower plumage greyish-yellow, growing vellower towards the tail.

Female: Whole upper plumage ruddy-brown, streaked on the back with black and fulvous and reddlish on the rump; wings and tail dark brown edged with fulvous, a white bar across the wing; a broad conspicuous fulvous line above the eye, with a broad dusky band through the eye; lower plumage pale ashy-yellow.

Iris reddish-brown; bill brown, black in male in summer; legs

Field Identification.—Himalayan species, common about hill stations; smaller than the House-Sparrow; male easily distinguished by cinnamon-red upper plumage and yellow lower plumage, female by the broad conspicuous pale band above the eye.

Ditribution.—The Cinnamon Sparrow is a widely-apread species occurring throughout the Himalayas and farther eastwards to China, Japan and Formosa. It is divided into races, of which P. r. cinnamoneus breeds along the Himalayas from Chitral and Harara to Kumaon and is replaced in the Eastern Himalayas by the larger P. r. s. shedjeri and in Assam, Burma and Yunnan by the darker P. r. intension. In the Himalayas it breeds at-elevations between 4000 and 8000 feet, and in winter collects into a lower zone along the foot-hills, on the east coming right down into the Duars.

Immense flocks of dark Sparrow-like birds are often found swinging along the open hill-sides of the Inner Himalayas, both cast and west, and feeding on the ground. These are usually Stoliczka's Mountain-Finch (Frinzillauda nemoricola).

Habiti, etc.—The pretty little Cinnamo Sparrow is really a forest Sparrow, though it lives mostly in oak and hodolearlow forest in the near vicinity of houses and other frequents garden. In winter it collects into large flocks which more down into the cultivation in the foot-bills and feed on the ground, picking up straygrains of rice and corn in the descrete fleids, and flying up when the disturbed into neighbouring trees. These flocks are often of considerable size. The call-note and persence of as ong are very similar to those of the House-Sparrow, but they are distinguishable in tone and allelthy more moledous.

The breeding season is from April to August, and probably two broods are reared. The nest is a large, loose structure of dry grass, lined warmly with feathers, and it is usually built in holes in trees at no very great elevation from the ground. Some nests are built under the eaves of houses and in verandash and old Swallows' nests.

The clutch consists usually of four eggs, but five and six are

The egg is a moderately elongated oval, fine in texture and with a slight gloss. The ground-colour is white, with a greyish or greenish tinge, speckled, sported, streaked, and blotched with various shades of brown, sometimes thinly with a tendency for the markings to collect at the broad end, at other times closely and thickly over the whole surface of the egg, almost concealing the ground-celour.

The egg measures about 0.75 by 0.55 inches.

THE WHITE-CAPPED BUNTING

Discription.—Length 6 inches. Males: The top of the head and the car-coverts pale grey; a bread black line over the eye; thin and upper throat black conducted down the sides of the lower throat upper throat black encode is white; sides of the head streaded with fullows and rufous; upper plumage chestum, the concealed portions of the wings dark brown; tall bowon margined with rufous, the two outer pairs of feathers white; a broad garget over the breast chestnet; remainder of lower plumages pale fullyons.

In fresh autumn plumage the colours are obscured with dull fringes to the feathers but these gradually wear off revealing the

Female: Upper plumage ashy-brown streaked with blackish except on the sides of the face; a patch above the base of the tail chestnut with blackish feather-shafts; wings brown, the feathers edged with fulvous; tail brown margined with rufous, the two outer pairs of feathers almost entirely white; lower plumage pale fulvous streaked with brown

Iris brown; bill brown, paler below; legs pinkish-fleshy.

Bill conical and sharply pointed, the edges of the two mandibles not completely in contact.

Field Identification .- Western Himalayas, extending to North-west India in winter; a quiet, unobtrusive little bird, often in parties in bushes and trees; male, chestnut above with a chestnut band across the breast, greyish-white top to the head and blackish face markings: female, dull-brown streaked darker; in both sexes the flash of white feathers at the edge of the tail is conspicuous.

Distribution.-Breeds in Turkestan, Afghanistan, Baluchistan, Kashmir, and the Western Himalayas as far as Almora, at heights from 4000 to 10,000 feet. From September to April it moves down into the foot-hills and extends into the plains of the Puniab and Western United Provinces, Rajputana and Central India.

A smaller and duller species resident in the Peninsula is the Striolated Bunting (Emberiza striolata), which is found, usually in dry stony hills, in North-west India as far as Etawah, Saugor, and Cutch. It is a brownish-looking bird with a grey head, streaked with black

Habits, etc.—This Bunting is somewhat local in its distribution, but when and where it occurs it is usually very numerous, avoiding thick forest and barren plains and preferring scrub-jungle on the edges of cultivation. It feeds mostly on the ground, collecting minute seeds, and except in the breeding season is generally found in loose scattered flocks, which when disturbed fly up and take refuge in the trees. When not feeding the flocks sit stolidly in trees and bushes. The call-note is a twitter, rather like that of a Linnet, and the breeding song is of the usual dull, reeling note of the genus.

The breeding season in our area is from May to July. The nest is a cup composed of roots, dry grass, and fibres, and is situated in a hollow in the face of a bank or rock, generally fairly well screened with hanging grass. The clutch varies from three to

five eggs. The egg is a short, broad, regular oval, fine in texture but with only a slight gloss. The ground-colour is white, mottled and clouded all over with pale purple-grey or slaty-grey, and superimposed are a few small dark brown spots.

The egg measures about 0.78 by 0.59 inches.

THE MEADOW-BUNTING

Description.-Length 7 inches. Sexes alike. Head, throat and upper breast pale bluish-grey, marked with two broad black lines the base of the beak below the ear-coverts and circling behind them up to the crown; remainder of body plumage chestnut-brown, on the back darker and streaked with black; wings blackish-brown. the feathers edged with rufous and chestnut; tail blackish-brown, the central feathers edged with chestnut, the three outer pairs with

In fresh autumn plumage the colours are obscured by pale fringes to the feathers which gradually wear

Iris dark brown; bill plumbeousslate darker above; legs fleshy-yellow. the edges of the two mandibles not

Field Identification.-North-western India. A chestnut-brown bird with a pale head, conspicuously lined with

black, which shows a white flicker in the tail as it moves; usually feeding on the ground, and abundant in open country round all hill stations of the Western Himalayas.

Distribution.-The Meadow-Bunting has a wide range through Southern Europe, North-western Africa, Transcaspia, the Himalayas, Northern China, and Eastern Siberia, and has in consequence been divided into a number of geographical races. E. c. stracheyi breeds throughout the Western Himalayas from 4000 to 11,000 feet from the Hazara country and Gilgit to about Kumaon. It is a resident species, though it undergoes a certain amount of seasonal elevational movement. Numbers of Meadow-Buntings appear in winter on the northern and western parts of the Punjab; they, however, belong to a paler race, E. c. par, which breeds from Transcaspia to Chitral.

Habits, etc. In the Western Himalayas this strikingly-marked little Bunting is one of the commonest birds. It avoids thick forest land alike, searching the ground and herbage for seeds and insects, or creeping about the roads and paths, where its tameness contrives to bring it into universal notice. It is very partial to the more open patches of deodar forest, isolated on otherwise bare hill-sides. Although almost entirely a ground-feeder, it flies up into the trees when disturbed, and its note, a slow, melancholy squeak, is one of the most familiar sounds of the Western Himalayas. The song is very poor, a mere jangle of odd notes and squeaks, uttered either from a tree or on the ground.

The breeding season is very extended, lasting from April to September, and two or three broods are probably reared.

The nest is a rather large but loosely built cup of dry grass, bents. roots, and similar materials, lined with fine roots and hair. It is usually placed on the ground under a large stone or in herbage at the foot of a bush or bank or between the rough stone blocks of the terrace walls of hill cultivation; but occasionally it is built in the thick foliage of a tree, 2 or 3 feet from the ground.

The clutch consists of three to five eggs, but the normal number is probably three. The egg is a moderately elongated oval, close and delicate in texture with very little gloss. The ground-colour is pale greenish-white, grey, or pale stone-colour. The markings consist of the most delicate and intricate tracery of blackish-brown lines drawn over faint and pale inky-purple streaks and marbling. These markings tend to be confined as a cap or zone to the broad end of the egg. Here and there a dark spot, like a fly caught in a spider's web, is seen amongst the network of lines, which are so characteristic of the eggs of the Bunting family, and are familiar to all through the English Yellow-hammer.

The egg measures about 0.83 by 0.63 inches.

THE BLACK-HEADED BUNTING

EMBERIZA MELANOCEPHALA Scopoli

Description .- Length 7 inches. Male: Top and sides of the head black; a yellowish collar on the hind neck connected with the deep yellow of the entire lower plumage; remainder of upper plumage and lesser wing-coverts deep orange-chestnut; the upper tail-coverts brown; wings and tail dark brown edged with ashyfulvous.

In fresh autumn plumage the colours are much obscured with dark fringes to the feathers which gradually wear off.

Female: Upper plumage fulvous-brown streaked with dark brown; wings and tail dark brown edged with fulvous; entire lower plumage delicate fulvous, washed with ochraceous on the breast and becoming yellow towards the tail.

Iris dark brown; bill pale greenish-horn, browner above; legs

fleshy-brown.

The bill is conical and pointed and the edges of the mandibles do not entirely meet.

Field Identification.-Winter visitor to the plains in flocks, often particularly abundant. Females are streaked brown birds; males are chestnut above, vellow below, with black heads vellow is the dominant impression given by the flocks which are usually found in

crops, flying up into trees when disturbed.

Distribution.-This bird breeds in South-eastern Europe, Asia Minor, Palestine, Syria, Upper Mesopotamia, and Persia, but not within our limits, where it is only a winter visitor. It crosses to and from India by a route over the western boundary of Sind, passing through Sind in August and September and again in March and April; thence it spreads into the plains generally as far east as Delhi, Nagpur and Chanda, and as far south as Belgaum.

The Red-headed Bunting (Emberiza bruniceps) is another species with much yellow in the plumage, the males being distinguished by a chestnut head. It is also found in flocks as a winter visitor to the greater part of India. The wide breeding range includes Baluchistan.

Habits, etc .- As we know it in India, this Bunting appears in very large flocks, sometimes in company with the allied Red-headed Bunting. It affects cultivation and scrub-jungle and feeds chiefly on

On the spring passage vast clouds of these birds may be seen in the ripening crops; on being flushed they fly into the nearest tree, making it appear a vellow mass, and it is noteworthy that these flocks then consist almost entirely of males. These flocks are very bold and are only driven with difficulty from a field where they have decided to feed, and owing to their numbers they can be responsible for a good deal of damage. In the autumn they also do a certain amount of damage to jowar and similar crops, but on that passage they are not usually so noticeable.

The breeding season is about May in Western Asia and Southeastern Europe. The nest is a cup of straw and grass lined with hair and roots and it is usually placed in a vine, a bush or a small tree. The clutch consists of four to six eggs, and these are pale greenish-blue, spotted throughout with ashy-brown and grey, but

They measure about 0.87 by 0.62 inches.

THE CRESTED BUNTING

MELOPHUS LATHAMI (Grav)

Description,-Length 6 inches. Male: Entire plumage including a pointed crest black, except the wing, tail and thighs which are chestnut, some of the feathers being tipped with black,

In fresh autumn plumage the feathers have ashy fringes which gradually wear off.

Female: Crest less conspicuous: upper plumage dark brown, the feathers edged paler; wings and taildark brown much marked with cinnamon; lower plumage dull buff streaked and mottled on the throat and breast with dark brown and growing more rufous under the tail.

Iris dark brown; bill blackish, fleshy at lower base; legs fleshy-

Field Identification.—A solitary bird, found about bushes on rocky hill-sides : conspicuous pointed crest :

Bunting (11 pat. size) male black with chestnut wings and tail; female much paler, brownish with cinnamon-tinged wings and

Fig. 34-Head of Crested

Distribution.-The Crested Bunting is found along the Outer Himalayas from Hazara to Bhutan, at elevations up to 5000 or 6000 feet. In the plains it is found from the Koochawan Hills and Mount Aboo across to Bengal and as far south as Mahableshwar and Satara. Farther east it extends to Assam, portions of Burma and to China. It is, however, very local and capricious in its distribution, and is locally migratory. Indian birds all belong to the race E. L. subcristata.

Habits, etc.-The Crested Bunting is in the main a solitary bird, though occasionally it collects into small parties of four or five individuals. It avoids both bare plains and forests and is essentially a bird of rocky hills or of open cultivation on the hill-sides, where stony ground and low scrub-jungle provide fairly undisturbed resorts for it. It feeds on the ground at all times of the day collecting small grass seeds, but perches and sings on the tops of bushes. When old buildings and walls are found in the locality it is very partial to them, perching on them and seldom moving far away.

In demeanour the Crested Bunting is a vivacious, lively, hold little bird, usually carrying the crest erect. On the ground and walking its attitude is very Peacock-like. The head and breast are held very upright, while the tail, which seems to trail behind, is rather expanded. It has a pretty, little simple call, but the song of the male is rather monotonous, one or two notes only, constantly

The nests are rather variable; some are loosely constructed, shallow saucers made of grass roots without lining; others are neat cups of grass and moss, lined with fine grass, fibres, and the roots of moss and ferns or horse-hair. They are placed in holes in banks. in walls, under rocks, or in heavy herbage on the ground,

The clutch consists of three or four eggs.

The egg is a rather broad oval, usually blunter towards the small end; there is very little gloss. The ground-colour varies from pale greenish-white to pale stone-colour: the markings consist of spots, freckles and blotches of red, brown and purple, usually most dense about the broad end. These eggs entirely lack the fine hairlines and scroll-like writing so characteristic of the eggs of the true

The egg measures about 0.79 by 0.63 inches.

THE INDIAN SAND-MARTIN

RIPARIA PALUDICOLA (Vicillot)

Description.-Length 4 inches. Sexes alike. The whole upper plumage greyish-brown, most of the feathers margined paler; wings and tail darker brown; lower plumage pale grey, growing whitish

The bill is very weak and flat, with a broad gape, the wings long and pointed and the tail slightly forked.

Field Identification.—Common plains Swallow, incessantly flying about sandy banks of water-channels in which its nest-tunnels are excavated. Highly gregarious, small and plain, dull brownish, paler

Distribution.-India, Assam and Burma and eastwards to Southern China, Formosa and the Philippines. It is found throughout the greater part of India from about the Central Punjab and the Indus valley in Sind on the west, and the Himalayan foot-hills on the north, down to the Bombay Presidency, the Deccan and Cuttack. While race is R. p. brevicaudata. It must be carefully distinguished from

the Common Sand-Martin (Riparia riparia), which has the under parts white with a well-defined brown collar across the breast and a small tuth of feathers on the back of the tarsus above the hind toe. This has two races in India. R. r. indica breeds in the North-west Frontier Province and the North-western Punjah, while R. r. diluta, which breeds in Western Siberia, visits North-western India down to Sided ionization.

Habits, etc.-The Sand-Martin is extremely gregarious in its habits, spending its whole life in flocks whether in or out of the breeding season. It is amongst the earliest of breeding birds in India, nesting generally from November to February, though in The colonies nest in sandy cliffs and banks, generally choosing those in the vicinity of running water, though occasionally they occupy banks over ponds or in dry nullahs. They feed almost invariable in the vicinity of water and spend the greater part of their lives hawking insects, high or low in the air according to circumstances, over the surface of swiftly-flowing rivers or the placid waters of iheels and tanks. When not at the breeding colonies they roost and thither like phantom moths and welcoming the day with their loud hard squeaks. They have no objection to the presence of man, and hawk freely over and about the houses of water-side villages; while a forest fire with its wholesale dispersal of insect life is sufficient to draw them from their usual haunts, in company with other insectivorous birds to share the feast. The alarm-note is a harsh ret and the song is a chattering twitter, not so agreeable as that of most other Martins and Swallows.

The nest is a slight pad of grass lined with feathers. It is placed a chamber at the end of a narrow tunnel, a foot or two long, which is excavated by the bird itself in a sandy bank, numbers of nest-holes being situated together in colonies. The clutch varies from three to five eggs.

The egg is a slightly elongated oval, rather pointed towards the smaller end; the texture is fine and delicate and there is no gloss. The colour is pure white, without markings.

In size the egg averages about 0.68 by 0.48 inches.

HE DUSKY CRAG-MARTIN

- RIPARIA CONCOLOR (Sykes)

Description.—Length 5 inches. Sexes alike. Upper plumage, within and tall dark sooty-brown, a white spot on the inner web of all the tail-feathers except the central and outermost pairs; cheeks, chin, throat and fore-neck rufescent streaked with brown, remainder of lower plumage sooty-brown.

Iris dark brown; bill and legs brown.

The bill is very weak and flat, with a broad gape, the wings long ad pointed, and the tail slightly forked.

Field Identification.—Plains species, generally in twos and threes about houses. Distinguish from Sand-Martin by larger size, much darker colour, and by the row of white spots on the tail; also by the difference in nesting habits.

Distribution.—This is a purely Indian and Burmese species, the typical race extending from the foot of the Himalays down to the Nilgiris. On the west it is found very locally about Kohat and Bannu and in the South-eastern Punjals, and it occurs in Rajaputans though not in Sind. On the east it extends to Behar and Chanda. It is a resident species.

This species may be easily confused with the larger Crag-Martin (Riparia supertris) which breeds in the Himalayas and is fairly common in winter in the hills of Western India from Mount Aboo to the Painis.

Habits, etc.—Although generally distributed and familiar enough from its abit of breeding in towns, this little Martin is never very abundant and does not gather into the immense flocks in which others of the family may at time be found. A few may be seen wherever a range of cliffs or the ancient ruins of forts or mosques provide a shady lee in which they sail tockwards and forwards in a very leisured manner. Dually two or three will be found together, and as they hawk about they call or each other a soft, meedious which-like-hild, uttered spally. In some of the older towns they next on the houses and then may be seen in the streets hawking above the heads of passern-by, though usually they prefer places that are not much

The breeding season is extended, lasting from January to October

The nest is a semicircular cup composed of pellets of mud, and coming down into a well-defined point beneath. It is applied by the side to a perpendicular surface of wall or rock, but usually in sheltered positions in a niche or under a ledge in a cliff, or under balconies and caves of houses. The nest is lined first with soft

flowering grasses and fragments of straw and then with feathers The nests are never built in colonies, though chance may cause two

The eggs are rather elongated ovals, sometimes rather pointed towards the small end. The texture is fine and fragile with a slight gloss. The ground-colour is white, and they are all more or less thickly speckled and spotted, and sometimes blotched, with different shades of yellowish- and reddish-brown. These markings tend to collect towards the broad end.

In size the eggs average about 0.72 by 0.52 inches,

THE WIRE-TAILED SWALLOW

Description.-Length 5 inches, with a lengthened wire-like shaft to the outer pair of tail-feathers 7 inches extra. Sexes alike, except that the wire is shorter in the female. Top of the head bright chestnut; sides of the head and neck and the whole upper plumage glossy. steel-blue, concealed portions of the wings and tail dark brown; all the tail-feathers except the two central pairs with a white spot on the inner web; lower plumage white.

Iris dark brown; bill and legs black.

Bill weak with a broad gape; wings long and pointed.

Field Identification.-Plains and lower hills; invariably near water. A dark steel-blue swallow, with chestnut cap and white under parts. At a close range the wires in the tail afford easy identification, but at a distance it may be recognised from any other swallow by the pure shining white of the lower surface and wing lining.

Distribution.—The Wire-tailed Swallow is divided into two races; one is purely African and is found in various parts of that continent. H. s. filifera, the Indian race, is widely spread, ranging from the Himalayas where it is found up to 5000 feet south to Mysore and the Nilgiris. On the west it ranges to the North-west Frontier Province and Sind. On the east it is found as far as Bengal, reappearing again in Pegu and Tenasserim. In the main a resident bird, it is also migratory in many areas.

The familiar Swallow of Europe (Hirundo rustica) breeds along the Himalayas, in very great numbers in Kashmir, and occurs throughout India in winter. The combination of the long forked tail, absence of a pale rump band, the red throat patch and dark gorget and the warm creamy flush to the white under parts allow of easy identification.

Habits, etc.-The Wire-tailed Swallow is essentially a bird of the neighbourhood of water. In particular it is fond of the great canals of Northern India, skimming over their surface with its long tail-wires conspicuous and its bright colours flashing in the sun. Where canals are not available it frequents the neighbourhood of heavy forest, in desert areas, and over wide cultivated plains it will not

This species never collects or breeds in colonies, though family parties are seen in the breeding season, and on migration a few join the flocks of other migrating Swallows and Martins. The twittering This species perches very freely on telegraph-wires and the parapets descends to the ground to gather mud for its nest.

Long after they are able to fly the young are fed in the air by the



Fig. 15-Wire-tailed Swallow (# nat. size)

old birds, parent and youngster circling round and round, and then with a complacent twitter clinging together for an instant during which the mouthful of insects is transferred.

The breeding season is very prolonged and two broods are reared; most eggs will be found from March to August, the time varying with the locality, but eggs have been found in every month of the

The nest is a rather shallow cup composed of mud pellets, fastened at one side to a slanting or perpendicular surface of wall or rock. It is lined with feathers. The situation chosen may be under a bridge or culvert, under shelves of rock, or in the arches and under the roofs of buildings. If not immediately over water, where it is very often within a foot or two of the surface, it is always wells.

The clutch consists of three or four eggs. In shape they are a

long narrow oval, rather pointed at the smaller end. The texture is fine and delicate with a slight gloss. The ground-colour is white and the markings consist of speckles, spots and blotches of reddish-brown and brownish-red; there is the usual tendency for the markings to collect towards the broad end.

The eggs measure about 0.72 by 0.53 inches.

THE CLIFF-SWALLOW

HIRUNDO FLUVICOLA Jerdon

Description.—Length 5 inches. Sexes alike. Top of the head dull chestnut with black shaft-streaks; a broad line through the eye dull brown; back and shoulders glossy steel-blue; wings, tail and rump dull brown; entire lower plumage white, more or less tinged with fulyous and streaked with brown, except on the abdomes.

The tail is very slightly forked; bill weak with a broad gape;

wings long and pointed.

Field Identification.—Plains species, highly gregarious, nesting in colonied mear water and building immense clusters of mud nests. Very similar in size, shape and demeanour to Sand-Martins (with which it often flies), but distinguished by the cheatnut cap and blueblack back.

Distribution.—A purely Indian species. It is found through a considerable portion of India, from Rawal Pindi and the foot-bills of the Himalayse (no to ago feet) in the north to Goimbatore in the south. On the west its boundary is not accurately known, but it is not found in Sind or the South-western Pupils): it extends to the east as far as Gonda, Mirzapur and the Wardha Valley. A local migrant.

Another small species, the Nilgiri Swallow (Hirundo javanica), is a common resident in the higher hill ranges of South-western India. It is very familiar about dwellings and builds the ordinary cup type of mud nest.

Habit, etc.—This is one of the purely social Swallows, spending all its life both in and out of the breeding season in big flocks which never separate. It is somewhat local and cratic in its distribution, but within its range it abounds wherever there is water, in combination with diffs or manonry against which it can plaster its huge net colonies.

The flocks usually hawk about in the near vicinity of water, often company with Sand-Martins, which in flight they somewhat resemble. Of the wing the birds sing very often, the feeble twittering song typical of the family. They drink a good deal, sweeping down

and taking mouthfuls from the surface of the water, and the newlyfledged young are fed on the wing.

This species is double-brooded, nexting from February to April, and again in July and August. The next is made of tipy pellets of clay which the birds collect from the ground with their beaks, and it consists of a small circular channel entered through a about substant mouth. This entrance tube is not applied to the surface against which the next is constructed, after the fashion of the Stritted Swallows, but it sticks out from the side of the next into the air free of stractive the strate of the side of the next into the air free of stractive the strate of the side of the next into the air free of stractive the strate of the side of the next into the air free of stractive that the strate of the side of the next into the air free of stractive that the strate of the side of th

The favourite site for one of the colonies is on the face of overhanging ciffs or beneath the arches of masony bridges; but perpendicular sites, like the walls of buildings, are not despised, and the bird appears to be indifferent whether the colony is in a secluded lonely spot or in a busy thoroughfare; but the close vicinity of water

The clutch consists normally of three eggs, but four are sometimes

The egg is variable in shape but is normally a long oval, pointed towards the smaller end. The texture is fine and delicate, but a slight gloss. The ground-colour is pure white, some eggs being unmarked, others being alightly mottled, speekled or clouded with pale yellowish- or reddish-brown. These markings tend to congregate at the broad end.

The eggs measure about 0.76 by 0.53 inches

THE RED-RUMPED SWALLOW

IRUNDO DAURICA Linnæus

Description.—Length 6 inches. Sexes alike. Upper plumage glossy steel-blue, except the rump which is chestunt; concasied portions of visings and tail dark brown, an indistinct white patch on the inner web of the outermost stal-feather; sides of the head mixed rufous and brown, the care-covers and a more or less distinct collar round the neck chestunt; the whole lower plumage pale rufous finely straked with beginning the properties.

Isia brown . bill and less black.

The bill is weak and small with a wide gape; wings long and pointed; tail deeply forked.

Field Identification.—Rather more deliberate in flight than the other true Swallows, and the tail appears differently shaped owing to the different angle of the fork; seen from above the chestnut rump is unmistakable, and from below the uniformly striated under parts.

Ditribution.—The Red-rumped, Striated or Mosque Swallows are a widely-spread group which court from Southern Europe and Africa to China, and in this great range are divided into a number of races. Within our area we are concerned with four: H. d. crystno-prygia breeds throughout the plains of India from about 4eco feet along the Outer Himalayas down into the Niligiris; on the west it extends to Cuck, the Punjah and the North-west Promiter Province actuals to Section, the Punjah and the North-west Promiter Province



Fig. 36-Red-rumped Swallow († nat. size)

(though not apparently to Sind); and on the east to about Calcuta. In the Himilayas it is replaced by 1M. displentia as Preeding bird; to the west this form breeds in a higher zone from 4000 to about 9000 feet; to the east it replaces 1M. de-sythoppiae even in the foot-bills. This race is rather larger, with a more deeply-forked tail, the rump Action of the colour, and the under parts are more heavily striated, Acting from: the colour and the string and the Afgiguan Acting from: a second Balachistan borders. 1M. disposition, breedings and Balachistan borders. 1M. disposition, breedings and page, appears in India as a winter visitor. All races are to some extent ningarony; and in winter all will be found in similar

localities in the plains, but their movements require working out.

Habits, etc.—Like other members of the family these Swallows
are chiefly remarkable for their nesting habits. During the breeding
season they are found in pairs which frequent the neighbourhood of

buildings and therefore of man, and from their tameness attract his attention. On migration and during the winter they collect into small parties or into flocks numbering up to 200 or 300 individuals. They spend the greater part of the hours of daylight on the wing. flying backwards and forwards over a self-appointed beat, hawking insects on the wing, occasionally resting on telegraph-wires and more rarely on trees and buildings. The flight is slower and more deliberate than that of the English Swallow and the note is rather different, a plaintive pin. The nest is a remarkable structure of fine mud pellets collected by the birds, a mouthful at a time, from the edges of puddles, and it takes several weeks to build; it is usually described as "retortshaped," and is always built under rocks or culverts or bridges or under the ceilings of houses and verandahs; a narrow tubular passage, like a white ant gallery on a large scale, some 2 inches in diameter and or roof and enters a round hemispherical chamber also applied to the under surface of the site and with no other entrance than the passage. The whole affair is rather large for the size of the birds, and the eggsame site is used year after year, though the actual nest is usually destroyed by the elements.

The breeding season lasts from April to August, but July is the month in which most eggs will be found; probably because a structure of dry mud would be more likely to give way under the influence of the dry heat before the rains commence.

The normal clutch consists of three eggs though four may be found. They are long, oval in shape, slightly compressed towards one end, with shells of exquisite fineness and with a very slight gloss. The colour is pure upmarked white.

They average about 0.78 by 0.55 inch

THE WHITE WAGTAIL

MOTACILLA ALBA Linnæus (Plate xii, Fig. 6, opposite page 288)

Description.—Length 8 inches. Male in winter plumage: A patch on the back of the head to rulphy connected with a crescentic garget on the breast black; remainder of head and lower plumage white, tinged with asly on the flanks; upper plumage ashy-grey; wings black, the feathers broadly margined with grey and white; tall black, the voo outer pairs of feathers largely white.

In summer plumage from the chin to the breast is black.

The above description applies to the adult winter male of M, a dukhunensis, but the species is very variable in its plumage according to age and season, as are the other races, and the identification of these Wagtails is a matter of much study. A rough guide to Indian birds is given below.

Iris dark brown; bill and legs black.

Field Identification.-The White Wagtails are small, dainty birds of black, white and grey plumage, which walk about on the ground usually in parties, incessantly wagging their long tails up and down . partial to the neighbourhood of water, wading in shallow portions of it

Distribution.—The White Wagtail is a very widely-spread species breeding in various forms almost throughout Europe, North-western Africa and Northern Asia. The dark resident form of the British Isles is known under the familiar name of the Pied Wagtail. Four of these races are found commonly in various parts of India. The only one of these four that breeds with us is M, a, alboides, which is the common breeding Wagtail of Kashmir, parts of the higher Himalayas and Southern Tibet. In the winter it moves down into the foot-hills from Kashmir to Assam and also Burma. M. a. personata breeds in Turkestan, Gilgit, Afghanistan and Eastern Persia, and is common in the plains of India in winter, extending to Belgaum in the south and Calcutta in the east. It commences to arrive in August and September and departs in April and May.

M. a. dukhunensis is the West Siberian breeding race whose range extends west to the Caucasus, Volga and Urals. It arrives about September and October and leaves again in April and May, having spread meanwhile throughout the whole of the plains down

M. a. leucopus breeds in Eastern Siberia and China, and in winter visits the eastern side of India to about Nepal and Mirzapur on the

west and also Assam and Burma.

The four races of White Wagtail that occur in India afford a curious case of parallelism; they may be divided into two sections by the colour of the ear-coverts and sides of the neck, and in each of these sections in full breeding plumage one form has the back grey and the other black. All four races of White Wagtail can easily be distinguished from the Large Pied Wagtail by their white foreheads, the black on the head extending to the base of the beak in the latter species, which also has a different series of moults and plumages.

M. a. dukhunensis and M. a. leucopsis both have the ear-coverts and sides of the neck white. In the former bird the back is grey

and in the latter black in breeding plumage.

M. a. personata and M. a. alboides have the ear-coverts and sides of the neck black. In breeding plumage here also the first form is grey on the back and the latter black.

In all four races the back normally becomes grey in winter plumage, though usually a few black feathers remain in the black-backed forms to indicate the type of summer plumage. M. a. leucopsis and M. a. dukhunensis may then, however, be separated by the greater wingcoverts, which have their outer webs entirely white in the former and merely margined with white in the latter. M. a. personata and M. a. alboides have no distinguishing mark in the absence of black plumage of Wagtails in India in winter, and considerable study is

Habits, etc .- In winter the habits of all four races of White Wagtail are very similar, and indeed two or three races may often be found associating together. The White Wagtail is a sociable bird, usually occurring in parties which collect together into large flocks about the migration periods and often associate with other species. They occamargins of water, into which they wade freely. Forest country is avoided, and in very dry localities they are comparatively scarce. Where possible they roost in reed beds and at suitable places very large numbers of White Wagtails, Yellow Wagtails, and Yellow-headed Wagtails collect together at night. The most marked characteristic is indicated by the name; as the bird runs about-for it never hops-the long tail is incessantly wagged up and down. The flight also is very characteristic in long, dipping curves, and on the wing the call-note chiz-zit is constantly uttered. The song is a pleasant but poor

white, speckled and spotted finely and closely, with pale brown and brownish-grey. There is a tendency for the markings to be thicker at the broad end.

THE LARGE PIED WAGTAIL MOTACILLA MADERASPATENSIS Gmelin

Description.—Length 9 inches. Adult male: A broad white streak over the eye from the nostril to behind the ear; bend, upper breast and entire upper plumage black; wings black, the quills finely edged with white, and a broad tapering white patch running the whole length of the folded wing; tail black, the two outer pairs of feathers largely white; remainder of lower plumage white, tinged with ashy on the flanks. The female resembles the male, but the black is not so pure in tone being usually mixed with ashy-brown.

Iris dark brown; bill and legs black.

Field Identification.—Found singly or in small family parties by water, walking about on the ground and wagging the long tail. Rasher larger and darker than the White Wagtails, and has the black of the forehead extending to the beak and enclosing a white eye streak. The only species of Wagtail that breeds in India south of the Humlaryas.

Distribution.—Confined to India and Ceylon. This Wagtail court throughout India from the North-west Frontier Province and Sind (where it is ran;) to the Duras and Western Bengal, and from the Outer Himalayas, which it ascends to 5000 feet, to Cape Comorin; in the Nigiris it is found at all elevations in the neighbour-hoad of water. It avoids the low country of Bengal proper. A purely resident species.

Hobit, etc.—This Wegati is found solitary, in pairs or in family parties, in the neighbourhood of water, provided that it be running water or ponds or tanks. In ordinary manhy ground, beloved of the Yellow Wagatis, it is not usually found. It feeds along the edges of the water, searching for insects, the long tail incessantly wagging up and down as the bird trips along. It perches freely on rocks and buildings, but practically never settles on trees. It is curiously partial to the clamps ferry-boast that ply on the larger Indian rivers, and not only petches and voyages on them, but on occasion even nests in them. The flight of that and other Wagatis is rather distinctive; jerky, with The flight of that and other Wagatis is rather distinctive; jerky, with the said of the Wagatis is rather distinctive; jerky, with a small the said of the Wagatis is rather distinctive; jerky, with a said of the Wagatis is rather distinctive; jerky, with the flight of that was done with the said of the wagatis is rather distinction of being the said of the wagatis of the said of the wagatis was a said of the wagatis of the wagatis of the wagatis was a said of the wagatis of the wagatis of the wagatis of the wagatis was a said of the wagatis wagatis of the wagatis of

The breeding season is from March to May, but eggs have been found in December and January on the Cauvery.

The nesting habits of this species are very variable; it will nest in any sort of hole provided that it is close to water, though it occasionally



1. Rufous-fronted Wren-Warbler. 2. Leaser Whitethroat. 3. Chiffchaff.

Dat. Size.)

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stretches this definition to include the drainage holes on roofs. In such places it either lays its eggs on bare earth in the bottom of the hole, or makes the very scanties of nests consisting of a few blades of grass, or a tolerably well-made cup of all sorts of varied materials, grass, hair, wood, tow, toots, fibress, stripg and the like. In fact, Hume's description of it as an irregularly-minded bird is the only just way of describing its netting babbis, remained to the like.

The normal clutch consists of four eggs, though three or five are sometimes laid. The eggs, too, are variable, either long or broad oxias in shape, rather pointed towards the smaller and. The ground-colour varies from pale brownish to greenish white. The markings are clouds, smudges, streaks, spons and specks of brown of various shades in every possible combination.

In size the egg measures about 0.9 by 0.65 inches.

THE GREY WAGTAIL

MOTACILLA CINERRA Tunstull

Description.—Length 8 inches. Male and female in winter plumage: The upper plumage bluish-geve tyinged with green; a patch at the base of the tail yellowsib-green; a dull whish line over the eye; wings dark brown, edged with yellowsib-white; tail black, margined with greenish, the three outer pairs of feathers almost entirely white; chin, throat and fore-neck white; remainder of lower plumage yellow, growing brighter towards the tail.

In summer plumage in the male the chin, throat and fore-neck become black, bordered with a broad white moustachial streak, and

with white tips to the black feathers.

In the summer plumage of the female the yellow is less brilliant than in the male, and a variable mixture of black, white and dull

yellow take the place of the black patch of the male.

Iris brown; bill horn-colour, paler at the lower base; legs fleshy-

brown.

Field Identification.—A solitary bird, generally about water.

Differs from all the other Wagtails in the comparatively longer and more slender tail and in the blue-grey colour of the upper parts. In flight the long tail and suphur-yellow belly and under tail-covers

are conspicuous.

Distribution.—The Grey Wagtail is widely distributed, chiefly about mountain streams, in Europe and Northern Asia, migrating southwards to Africa and Southern Asia in winter. It is divided into races, of which only one concerns us.

This Eastern race (M. c. melanope) breeds from the Yenesei across

Siberia to the Pacific and south to the Himalayas. In winter it spreads throughout the plains of India to Ceylon, and eastwards to Malaysia.

Habits, etc.-During the breeding season in the Himalayas the Grey Wagtail is essentially a bird of the mountain streams and rivers where they flow with considerable strength through boulder-streyer beds. In winter when it appears in India from August until April is is seldom able to discover these conditions, and then has to be content with tripping about the margins of a variety of tamer waters, and even with feeding on roads and other waterless places. It is a solitary species, and does not gather into flocks like the other Wagtails The call-note is a rather shrill tait-zee, which is chiefly uttered on the wing as the bird takes to flight and flies swiftly away low over the ground, rising and falling in buoyant curves and exhibiting conspicuous glimpses of the sulphur-vellow of the lower plumage. The tail-wagging of the genus is most pronounced in this species owing to the comparatively greater length of tail.

The breeding season in the Himalayas is in May and June.

The nest is a neat cup of grasses, bents and various roots and fibres, thickly lined with hair. It is built on the ground under boulders in river-beds, or amongst stones and herbage at the edge of streams. The clutch consists of four or five eggs.

The egg is a broad oval, rather compressed and pointed towards the smaller end, with a fine hard texture but little gloss. The groundcolour is yellowish or brownish-white, closely mottled and clouded all over with pale yellowish-brown and brownish-yellow, with a very uniform effect. A black twisted hair-line or two is generally present about the broad end

The egg measures about 0.70 by 0.54 inches.

THE YELLOW WAGTAIL

Description.-Length 7 inches. Male in fresh winter plumage: Top of the head bluish-grey, the feathers tipped with olive; upper plumage dull olive-brownish, wings dark brown, edged with fulyous; tail black, narrowly edged with olivaceous, the two outer pairs of feathers white; a broad band on the sides of the head dark slatyblackish; the whole lower plumage yellow sullied about the breast. In a few individuals there are traces of a white line over the eye.

Male in fresh summer plumage: Top of the head dark slaty-grey; upper plumage yellowish-green; wings and tail as in winter but with the feather edges of the wings decidedly yellowish; a broad band on the sides of the head black; the whole lower plumage bright vellow Traces of a narrow white line over the eye are sometimes visible.

Female : Resembles the male, but has the head green and upper parts dark olive-brown, greenish-olive on the rump, the vellow of the lower plumage paler and more sullied on the breast, and the band on the sides of the head duller and browner; a fulyous line over the eye is generally present.

This description applies to typical specimens of the race M. f. thunbergi. Race, age and sex cause great variation in the plumages of this species which needs expert study.

Iris brown; bill blackish-brown, paler at base of lower mandible; lees dark horn.

Field Identification.-Plains except in the summer: typical Wagtails found in mixed flocks containing two or three forms, of which a

small proportion are in bright adult plumage, greenish above vellow below, while the majority are in dull nondescript plumages: always feeding on the ground in damp grassy spots, active and wagging their Distribution.-In the Yellow Wagtails we have a most difficult

group of birds: the adult males may be distinguished with a certain amount of ease, but females and young birds are exceedingly hard to discriminate, and the whole group needs a great deal of study before one can claim to know even a little about them. Here it is possible only to indicate the outlines of the subject.

Formerly it was the custom to treat the various forms of Yellow Wagtail as separate species. More recently various groupings have been adopted, but here I prefer to treat them as geographical races of one widely-distributed species which breeds throughout the greater part of Europe and the Mediterranean countries and Northern Asia, and migrates southward in winter.

Syke's Yellow Wagtail (M. f. beema) breeds in West Siberia. Winters in India, south to Belgaum and the Cumbum Valley and east to Calcutta.

The Grey-headed Yellow Wagtail (M. f. thunbergi) breeds in North Scandinavia, Russia and Siberia; migrates through Europe to Africa and to every portion of India, Ceylon and Burma.

The Eastern Black-headed Wagtail (M. f. melanogrisea) breeds in Turkestan and winters in India south to Belgaum and east to

The following key will serve to indicate the salient differences in the adult males of the three races in summer plumage :-

M. f. beema .- Crown paler grey; cheeks white; a broad and distinct white superciliary streak over the eve.

M. f. thunbergi.—Crown dark slaty-grey; cheeks blackish; superciliary streak very indistinct or absent.

M. f. melanogrisea.—Crown black; cheeks and car-coverts deep black; superciliary streak very indistinct or absent.

Care must, however, be taken not to confuse the Yellow Wagsals, with the three runes of the Yellow-based Wagstall (Mostalle arisals) that also appear in India in winter, and of which one race breeds commonly in the Himalayas. The adult males of this species have the entire head brighty rellow, and at all ages and seasons the Yellow-beated Wagstals by a part of the property of the

An olive-brown Wagtail with two black bands across the breast, which wags its tail from side to side, not up and down, is the Forest Wagtail (Dendronanthus indicus), found chiefly in North-east India, Assam Burma and Southern India.

Habits, etc.—The Yellow Wagtails, as we know them in winter, are writed of marked and typical habit. They commence to arrive in Northern India at the end of August and pass through on passage until about October; they start to return to Northern India about Perburary and have left again by the end of April. Farther south of

course their atatus varies proportionately.

They are found in flocks mingulated irrespective of race, and spend their days feeding on the ground in open grassy places, preferably damp in character, or about the degree of placels or in the pastures that surround the larger rivers. They are very partial to the neighbourshood offcrowes of cartle, feeding all round the legs of the grazing animals, no doubt finding that their personnel attacts or datarths a varied insect life. In suitable places very large numbers collect, and morning and evening they flight in a compituous manner, travelling at a moderate height above the ground with the dipping flight and shell distant calls which are common to all Wagatals. They root at right in the recebeds, and suitable places are used by immense congregations of the various forms of Yellow Wagatals, Yellow-Meaglab, Vellow-Meaglab, Vellow-Meaglab,

In their northern quarters the Yellow Wagtails breed about June, building a well-concealed nest of grasses and bents with a thick lining of hair. It is placed on the ground in thick vegetation in low-lying, damp ground or cultivation.

The eggs vary from four to seven in number, and are rather broad ovals, pointed towards the small end, with a fine texture and little gloss. They are ochraceous-grey or brown in colour, so finely speckled as to be almost uniform, and generally exhibit one or two black hair streaks.

In size the eggs average about 0.75 by 0.55 inches.

THE INDIAN TREE-PIPIT ANTHUS HODGSONI Richmond

Description—Length 6 inches. Sexes alike. The whole upper plumage brown with a greenish iting, the feathers streaked or centred with blackish except on the rump; wing dark brown, margined with follows: tial dark brown, the two outer pairs of feathers tipped diagonally with white; a broad streak over the eye fultous, growing white posteriorly; lover plumage pale favious, the whole breast and addes of the throat lowely areaked with black; flanks wanded with

Iris dark brown; bill dark brown, base of lower mandible fleshy; legs flesh-colour.

In summer the greenish tinge wears off, and the eye streak becomes white.

Field Identification.—A small brown bird, whitish below, streaked with blackish above and about the breast; found in parties feeding on the ground in shady spots and flying up into the trees when disturbed; has a faint plaintive note and wags the shortish tail after the fashion of a Wartail, only more slowly.

Distribution.—This Pipit breeds in Siberia, Northern China, and Japan, and on the higher Hinalayas about 700 to 12,000 feet. In winter it migrates southwards to Southern Japan, Southern China, Cochin-China, and India. A that season it is found in Indis throughout the greater portion of the plains, occurring as far west as Rajputana and Guecria, and in the foto-bills of the Himalayas to Dokarmaka. Southwards it extends to the Palni Hills. Himalayan breeding birds are heavily atreaded and belong to the race A. A. heressessió. Most birds found in winter in the Peninsula belong to the lightly streaded found in winter in the Peninsula belong to the lightly streaded.

The closely-allied Tree-Pipit (Anthus trivialis) which lacks the greenish tinge on the upper parts and has a less conspicuous eyes stripe fulvous throughout, is a winter visitor pratecially throughout India. It breeds in Europe and Northern Asia, including the higher

Hodgson's Pipit (dathus roseatus) which breeds at high elevations in Northern India and Assam, is rather similar to these two Pipits but may be recognised from them and all other Indian forms by the primrose-yellow under wing-coverts. In breeding plumage the throat and breast become vinaecous.

Habit, etc.—In winter this Pipit is found in small parties which frequent fairly open country with plenty of shady trees; they are partial to gardens, groves of mango trees and similar situations, and feed quietly on the ground in sparse herbage, collecting small insecting.

and the seeds of grass and weeds. When disturbed they fly up into the nearest tree with a short plaintive call and wait quietly there used the coast is clear for them to resume their feeding. When in trees they walk about on the boughs in a manner unusual amongst small passerine birds, and have a habit of awaying their tails up and down, after the fashion of a Wagatal. The flight is rather slow and dipping, similar to that of the latter bird. In the breeding season the male with the state of the state of the state of the state of the state pipelines and the state of the state of the state of the state of the syndyse and tail outspread down to the ground or to the topmost

The breeding season in the Himalayas is from May to July. The nest is a shallow cup composed of moss and dry grass, lined with fine dry grass-stems and a few hairs, and it is placed in a hollow in the ground, in the shelter of a tuff of foliage or a creeping plant, and as Cotonaeter. It is bulk either on an Alpine pasture above the limits of tree-level, or in open grassy gales in the midst of the higher mountain forests. The bird is very shy at the nest and is then observed with difficulty, where disappearing into the forests or rising into the air in a series of jerky flights. When flushed off the next it sometimes fultures down the hillside as if younded.

The clutch consists of four eggs. The egg is a slightly elongated our care pointed towards the small end; the texture is fine with a slight gloss. In colour the eggs are closely speckled with dingy rather purplish-brown, so closely and evenly marked that no ground-colour is visible.

They measure about 0.90 by 0.65 inches.

THE INDIAN PIPIT

ANTHUS RUFULUS Vicillot (Plate xii, Fig. 1, opposite page 288)

Description.—Length 6 inches. Sexes alike. Upper plumage fulvous-brown, the feathers centred with blackish-brown; a fulvous streak over the eye; urings datk brown margined with fulvous; ail dark brown, the outermost feather almost entirely white, the next to it with an oblique white tip: lower plumage pale fulvous, darker on the flanks, the sides of the throat and fore-neck and the whole breast areasked with dark brown.

Iris brown; bill brown, base of lower mandible yellow; legs

The claw of the hind toe is long and slender, longer than the toe itself.

Field Identification.—A small brown bird, pale failsom below and streaked on the breast, which runs about on the ground, rising with a plaintive note and a flash of white in the tail, to settle again short distance away. Distinguished from the Tree-Fighis by the long hind claw and the fact that it does not settle in trees. It must, however, be remembered that several species of Pipit are locally common in India, and their identification is a matter of considerable knowledge and experience.

Distribution.—This Pipti occurs throughout practically the whole of India, Burma and Ceylon, breeding in the plains and also in suitable places in the Himalayas and other ranges up to about 5000 feet. Ferrither east it extends to Siam, Lombook and Timor. In the main it is a resident species though it performs certain local migrations. There are several races. The typical race is found throughout the greater are several races. The typical race is found throughout the greater when the several distribution of the southwest and Ceylon by the dished Ar. A continue of the southwest and Ceylon by the dished Ar.

Practice is required to tell this species from the Tawny Pipit (Anthus campestris), a winter visitor to most of India except the extreme south. It is slightly larger, more sandy in colour, and when adult unspotted on the breast.

There are two very large Pipits (length 8 inches) in India, easily separated by the length of the hind claw. The Brown Rock Pipit (Anthus simili) breeds in the Western Himalayas, Balachistan, the Salt Range, the Western Ghats and the Nilgiris. It has a short hind claw. Richard's Pipit (Anthus richards) with a long hind claw is winter visitor to India, most common in Bengal and the Madras Development of the Pipit (Anthus richard) with a long hind claw is

Habiti, etc.—This Pipti is essentially a bird of cultivation with low crops and of grass-land; it is particularly partial to the stretches of sandy soil with closely-grazed grass which are found about the margins of pleads and in the day beds of the larger rivers. Here it runs and feeds on the turf, rising when disturbed with the slightly pleads the contract of the contract of the pleads of the turf, rising when disturbed with the slightly pleads on the turf, rising when disturbed with the slightly pleads on the contract of the pleads of the properties of the pleads of the properties of the pleads of the pleads

This Ppit perches freely on bushes and tufts of grass, but usually only when breeding; it does not settle or trees. In the breeding display the male rises in the air in one according succession of dipping curves, uttering all the time a jamiging, rather Banting-like song: arrived at the highest point in the air he then falls to earth again, in an aburpt curve, with stiff, partly extended wings. When disturbed suddenly from the next the female flutters along the ground as if

The breeding season extends from March to July and two broods

are apparently raised. The nest is placed on the ground under or in the midst of tufts of grass; it is usually cup-shaped, but in some examples there is a slight dome. It is composed of dry shreds and blades of coarse grass, or fine dry roots, with a slight lining of fine pieces of root and grass with a few hairs.

Three or four eggs are laid, but the former number is more common The eggs are moderately broad and rather perfect ovals, scarcely pointed at all towards the small end; they are hard in texture with a slight gloss. In colour they are brownish- or greenish-stone colour. thickly streaked, clouded, and spotted with dull brownish- or purplishred, with brown of different shades and pale purplish-grey. These markings often tend to form a cap at the broad end, and altogether

(Plate xii, Fig. 5, opposite page 288)

Description.-Length 6 inches. Sexes alike. Upper plumage, including a short indistinct crest, brown with darker centres and tawny margins to the feathers; a pale fulvous streak over the eye; wings dark brown, the feathers margined with rufous; tail dark brown, margined with rufous, the two outer pairs of feathers largely pale buff; lower plumage pale buff, washed with fulyous on the sides and breast, the throat spotted and the chest streaked with brown.

Iris dark brown; bill and legs yellowish-brown.

The hind claw is very long and straight.

Field Identification. - A streaked brown bird, buffish-white below and with pale buff edges to the tail which become conspicuous in flight. Feeds and settles on the ground in open country, but sings in a characteristic soaring flight. Distinguished from the Pipits by the heavier build, short crest, the more crouching gait, and the fact that when approached it squats instead of running.

Distribution.—The Little Skylark is found throughout a large area of Southern Asia from Turkestan eastwards to Siam and Cochin-China and southwards to Ceylon and Tenasserim. It is divided into several races distinguished by size and depth of coloration, and these are sometimes treated as races of the well-known Skylark of Europe (Alauda arvensis), of which one race, A. a. intermedia, arrives in North-western India in winter in large numbers. It appears, however, better to keep the two species separate. We are concerned

with several races of the smaller bird which vary in small details of size and tint. The Turkestan race, A. g. inconspicua, just comes into our area in Baluchistan. A. g. lhamarum is the breeding bird of the higher Himalayas from Kashmir to Sikkim, at heights from 5000 to 14,000 feet, wandering in winter in flocks down to the foot-hills. A. g. swipoldi breeds at high elevations in Bhutan and S. Tibet. A. g. punjaubi is the pale bird of the Punjab and the United Provinces as far east as Moghulserai and Dinapur. A. g. australis is the large and dark bird of the Nilgiris, Cochin and Travancore, whilst the typical race occupies the rest of Eastern, Central and Southern India and also

The flocks of Skylarks (A. a. intermedia) which arrive in winter may be distinguished by the larger size and more pointed wing, the 5th primary falling short of the tip of the wing by over 5 millimetres. Habits, etc.-The Skylark is a bird of open country, dwelling

almost exclusively in cultivation or on grazing lands contiguous to it. In such localities it lives and feeds on the ground, picking up seeds and insects and fallen grains of all the cultivated cereals. On the ground it is quite inconspicuous, both owing to its protectively coloured plumage and to its habit of preferring to squat instead of running when approached. It squats as long as possible; then suddenly springs into life with a liquid bubbling chirrup, and flies

song, into which the imitations of other birds' calls are introduced. When singing the bird mounts to a great height in the air, almost vertically, with the head to the wind and the wings fanning rapidly; having attained its pitch it remains there for a long time, keeping ceases, and the bird falls rapidly with the wings held stiffly open. The

The breeding season is from March to July, and even later till November in the Southern Indian race. Two broods are reared.

The nest is placed on the ground in a shallow depression scratched by the birds themselves, sheltered by a clod of earth, a tuft of grass or a small stunted bush. It is a shallow cup of dry grass, usually lined with finer grasses. Three to five eggs are laid.

The egg is a moderately broad oval, rather pointed towards the smaller end, with a fine silky texture and a slight gloss. The groundcolour is greyish- or yellowish-white, concealed almost entirely by the markings which are fine spots and frecklings of pale yellowish-brawn. purplish-brown or very pale inky-purple.

In size the eggs measure about 0.83 by 0.62 inches.

Description.-Length 6 inches. Sexes alike. Upper plumage pale greyish mealy-buff, the feathers streaked with blackish-brown: wings dark brown edged with fulvous; tail dark brown edged with fulvous, the two outer pairs of feathers partly very pale buff: a buff streak over the eye; lower plumage dull whitish, washed with brown on the breast which is sometimes streaked; a half-concealed blackish spot on each side of the breast.

Iris brown; bill dark horny-brown, fleshy below; legs brownishflesh-colour.

Field Identification.-Winter visitor in large flocks to the plains of India, feeding in stubbles and open barren country; a small sandycoloured Lark with a dull semi-concealed dark spot on each side of its

breast in place of the usual streakings.

Distribution.-The Short-toed Lark is a widely distributed bird in Europe. Northern Africa and Asia, and is divided into a number of races, the identification and distribution of which are a matter of considerable difficulty. -The differences are based on small details of colour, tint and measurement. Two forms are found amongst the hordes which appear as winter visitors in India. C. b. longipennis, the grey-tinted breeding bird of Eastern Central Asia, is found in the north-west of India down to a line roughly between Bombay and Kumaon; while to the south-east of that line down to about Belgaum and into Assam a more rufous bird (C. b. dukhunensis) appears.

A very closely allied species (Calandrella acutirostris) also appears locally in India in winter. This may be distinguished without difficulty from the forms of C. brachydactyla by an examination of the tip of the wing, as it has the first four long primaries equal, whereas in C. brachydactyla the fourth long primary is considerably shorter than

the first three which are equal.

A third and smaller species of Short-toed Lark, the Sand-Lark (Calandrella raytal), with two races is found as a resident in India. This is most easily distinguished by the fact that it spends its whole life about the sand-banks of the larger rivers, running about near the

edge of the water. Habits, etc.—The Short-toed Lark is only a winter visitor to India, arriving about September and leaving in April. Numerically it must be very abundant, as it is found in flocks often of large size, and these flocks are common in open country, feeding both in stubbles and on waste ground generally, even on that of the most strictly desert character. The food consists of small seeds, but insects are also eaten. These birds never perch except on the ground, where owing to their small size and protective coloration they are practically invisible; when approached the birds of a flock rise irregularly, a dozen or two at a time, and when all are in the air they join into a compact flock which flies with a peculiarly free and swinging motion. The call-note is low and rather harsh. This is one of the birds that is eaten in India under the name of Ortolan, a species which itself is never found amongst the great numbers of birds that figure on the table in India under its name.

The breeding habits of the Short-toed Lark in its more northern home are similar to those of other Larks; a small cup of dry grass lined with wool and hair is placed in a slight depression of the ground. The eggs vary from three to five; the ground-colour is vellowishashv-grev snots

The egg measures about 0.75 by 0.55 inches.

Description.-Length 6 inches. Sexes alike. Upper plumage dark brown, the coverts margined with pale ashy and the guills with the two outer pairs of feathers largely edged with pale rufous: sides of the head mixed fulvous and brown; chin and throat pale fulvous-

Field Identification.-Plains bird, found in open country feeding on the ground and perching often on bushes. Dark ashy-brown

Distribution.-This species of Bush-Lark is found throughout the north-eastern part of the Indian Peninsula north and east of a line drawn roughly from Ambala district to Cuttack, extending through Bengal into Assam and thence into parts of Burma. A permanent

from all other Indian Bush-Larks by having the inner web of the

in places even to particular fields, but its general distribution includes almost the whole of India, except the Lower Punjab, Sind, Western Rajputana and parts of the Madras Presidency.

Haltit, etc.—This Lark is found in the better watered and fairly well-wooded tracts of its range, frequenting open plains and cultivated fields and often being seen on the roads. It feeds on the ground, collecting small seeds and insects, but perches freely on bushes and small trees, and like the rest of its genus has a breeding flight in which the rather weak sone is uttered.

The breeding season is in May and June.

The nest is a loose, flinsy pad of grass and roots, as a rule too loosely constructed to be removed undamaged; it is placed on the ground in a depression overhung by tufts of grass and is usually surmounted by a sketchy dome of grass and roots, with the entrance hole at one side or at the top.

The number of eggs varies from two to five. The egg is a moderately broad oval, fine and delice in texture with a slight gloss. The ground-colour is white, faintly tinged with grey or stone-colour. The markings consist of fine freekles and spots of yellowish-or purplish-rown, with a tendency to collect in a cap or zone about the broad end.

In size they average about 0.83 by 0.61 inches.

THE RED-WINGED BUSH-LARK

MIRAFRA ERYTHROPTERA Blyth (Plate ix, Fig. 5, opposite page 208)

Description.—Length 6 inches. Sexes alike. Upper plumage fulvous-brown, streaked with blackfab-brown; wings brown, the coverts edged with fulvous, and both webs of the quills largely chest-out; tail Obackish-brown, the central pair of feathers pale brown margined with fulvous, and the two outer pairs of feathers parly pale fulvous, is a pale fulvous and the two outer pairs of feathers parly pale fulvous, which there are the pale fulvous with triangular spots of remainder of lower plumage pale fulvous, with triangular spots of the pale full pale full

blackish-brown on the breast.

Iris brown; bill horny-brown, fleshy below; legs flesh-colour.

Field Identification.—A small unobtrusive Lark found in parties
on the ground in sandy scrub-covered country broken with cultivation;

brown and fulvous in colour with much chestnut in the flight-feathers.

Ditribution.—Confined to India. Found throughout the whole
of India from the outer foot-hills of the Himalayas to about the
latitude of Nellore and east to the longitude of Calcuta. It is divided
into two races. A pale race, named M. e. sindauae, is found in Lower

Sind, in portions of the Punjab, in Jodhpur, and eastwards to Etawah. The rest of the range of the species is occupied by the typical race. A purely resident bird.

There is some doubt as to whether the well-known Madras Bush-Lark (Mirafra affini) is not really a race of this species. It is larger and darker with less chestnut in the wings. It is found south of a line from Orissa through Hyderabad to Belgaum and also in Ceylon

Habits, etc.—This, like other species of Bush-Lark, is somewhat

patchly distributed, being common in some boothies are dissected or others that appear equally satisfies. It is typically a bind of spaper closest earth-jumple, where thorn bushes, light grass and explorits agow on a sandy soil mixed with outcrops of rock, though it may also be found in cultivation. It is usually collected in small parties, which feed unbetrailedy on the ground, squatting at the approach of an intruder and then suddenly appropriate into flight; they for a first of the state of the state of the state of the state of an intruder and then suddenly appropriate into flight; they for a first of the state of the state of the state of the state of an intruder and then suddenly appropriate in flight; the period of the state of the state of the state of the state being disturbed. In the breeding season the rule has a singing light in the air, pranchizing down to settle either on the ground or on the top of a cuphorbia or other bush. This species often perches on telegraph-wire.

The breeding season is rather irregular, and extends from March to October. The nest is a mere pad of grass mixed with a little vegetable fibre in the form of a very shallow saucer. It is built on the ground in various situations, in depressions on open ground or in cover at the base of bushes and is different to find.

The number of eggs varies from three to five, but the normal clutch is four. The egg is of a very perfect oval shape, fine in texture with a slight gloss. The ground-colour is white tinged with greenish or brownish, finely speckled and dotted all over with reddish, brownish or purple; the exact tint and density of the markings is very variable

The egg measures about 0:76 by 0:50 inches.

THE CRESTED LARK

Galerida Cristata (Linnæu

Description—Length 7 inches. Sexes alike. Upper plumage, bearing the point of the carbon streaked with blackish; wings brown, the feathers with sandy margins, and the quills with a large rufous patch on the inner webs; tail brown, the feathers edged with sandy, the outer pair of feathers largely pale rufous; a pale

brown on the breast and less distinctly on the flanks.

Iris light brown : bill and legs horn-colour.

Field Identification .- A typical sandy-brown Lark found in open country in Northern India and easily distinguished by the erect tuft of pointed feathers on the head.

Distribution .- A widely-distributed species found throughout the greater part of Europe and South-western Russia, in Northern Africa and a large extent of Asia. It is divided into over twenty races which to some degree are correlated with types of soil. Of these we are concerned with two only. G. c. chendoola is the resident bird of India It is found throughout the north-west parts of Continental India, from

the foot-hills of the Himalayas at about 4000 feet down to the Central Provinces and the boundary of Rengal

G. c. magna, the breeding race of Central Asia, East Persia, Afghanistan and Baluchistan, is a winter visitor in considerable numbers to Sind, and probably other areas of the extreme northwest. It is recognisable by its larger size and more sandy colour. Two allied species smaller and more rufous in (Galerida deva) and the Malabar



Fig. 37-Headtof Crested Lark

Crested Lark (Galerida malabarica) are residents in Peninsular India. The former is widely distributed from Sambhar and Etawah southwards through Central India, the Central Provinces, Bombay Presidency and Hyderabad to Mysore. The latter is confined to the west coast from Ahmedabad to Travancore and Mysore state. The Malabar Crested Lark is the larger and darker of these two species, with the breast more heavily streaked and the light parts of the tail much deeper rufous.

Habits, etc.-The Crested Lark is very common in the sandy open plains of North-western India, both in and about cultivation and in the more desert areas. It lives and feeds on the ground, and likes, in particular, the neighbourhood of rough country tracks and roads where it finds corn and insects about the droppings of passing animals. The resident race is usually found in twos and threes, but the large Central Asiatic race in winter may be found in large flocks of up to a hundred individuals. The bird is far from shy, and on the ground allows a very near approach, walking about with its crest erected

and merely flying for a short distance when it does rise. The call-note is a rather sweet tee-ur. The song is short and pleasant, and is uttered both on the ground, from the top of a bush or during a soaring flight.

The breeding season lasts from March to June. The nest is placed on the ground in a depression in the shelter of a small plant occasionally a few feathers.

The normal clutch consists of three eggs, though four and five are occasionally found. The egg is a broad oval, rather pointed towards the small end, with a fine texture and slight gloss. The ground-colour is greenish- or yellowish-white, speckled, spotted and blotched, with various shades of brown and purple; the markings are usually regularly distributed, but they sometimes tend to collect in a

They measure about o.87 by o.65 inches.

Description.-Length 6 inches. Sexes alike. Upper plumage dark brown; wings brown, margined with sandy-brown, much rufous on the inner concealed webs of the quills : tail with its coverts deep rufous, a broad black bar across the end; sides of the head lower plumage rufous, the chin, throat and breast streaked with brown.

Iris brown: bill horny-brown, base of lower mandible fleshy:

Field Identification.-Plains species: found in parties on open Distribution.-This handsome Lark is found in North-western

Africa, the Cape Verde Islands, East Persia, West Baluchistan, and India, being divided into several races. Only the typical race is found in India. Its western limit is roughly a line drawn from the

other races as far as North-western Africa, is resident in the low

desert hills of the North-west. It is chiefly remarkable for the habit

Habits, etc.—The Rufous-tailed Lark finds its favourite haunts in open plains, stubbles and ploughed fields, and out of the breeding season is usually found in small parties. It normally keeps to the ground, where it feeds on seeds and insects, but in the breeding season it often perches on a low bush and thence utters its short twirling melodious note. It also perches on telegraph-wires,

The breeding season lasts from February to April. The nest is placed in open fields or plains in a slight depression on the ground,



Fig. 38-Rufous-tailed Lark († nat. size)

either natural or scratched out by the birds themselves, and is sheltered generally by a clod, or stone or tuft of foliage.

The clutch consists of three or four eggs. The egg is a moderately elongated oval, slightly pointed towards the smaller end; the texture is fine and there is a slight gloss. The ground-colour is creamy or white tinged with yellowish, freckled and speckled all over with yellowish- or reddish-brown and a few secondary markings of pale inky-purple; the markings tend to be most dense at the broad end.

The eggs measure about 0.85 by 0.62 inches.

THE ASHY-CROWNED FINCH-LARK

Description.-Length 5 inches. Male: Upper plumage pale ashy-brown, concealed portions of the wings dark brown; tail dark brown, central pair of feathers light brown, the outermost pair largely white; a large patch over the ears, and the sides of the breast whitish; remainder of the sides of the face and the lower plumage dark chocolate-

Female: Upper plumage and wings and tail dark brown tinged with grey and rufous; the outer pair of tail-feathers largely white; sides of the face and a line over the eye rufous; lower plumage pale

Iris brown; bill bluish-flesh, darker above; legs brownish-flesh. The bill is very short and deep, and curved on the upper surface.

Field Identification. A small lark, sandy grey-brown in colour with the lower surface dark chocolate-brown in the male. Found in flocks in open plains country and often very numerous. To bedistinguished from the allied species, the Black-crowned Finch-Lark (Eremopteryx frontalis) of North-western India, which in the male has

Distribution.-This Lark is a purely Indian species, except that it occurs also in Ceylon, being found from the foot of the Himalayas-



Fig. 39-Ashy-crowned Finch-Lark (# nat. size)

to Cape Comorin and from the western borders of Sind and the North-west Frontier Province to the longitude of Calcutta. The birds of the North-west (Sind, Cutch, Punjab, Raiputana and the Western United Provinces), where the annual rainfall is less than E. g. siccata. The Ceylon race (E. g. ceylonensis) has a heavy bill.

Habits, etc.-This quaint little aberrant Lark is one of the most Salt Range it is, strictly speaking, only a species of the plains. It the minute seeds that litter the ground. Found in pairs with a strictly defined territory while breeding, it collects, often, into large flocks at other times. On the ground their coloration renders these Larks very inconspicuous, and an observer walking along is often astonished at the number which rise one by one around him and then fly away in a dense flock from ground which was seemingly empty of life.

The breeding season lasts from Junuary to September, and apparently two broods are raised. While breeding the makes are apparently two broods are raised. While breeding the make are indefatigable songsters, singing both on the ground and in the size, in the latter case while the bird is raising and falling in a series of deep stoops, keeping over and about the same patch of ground; reaching its highest pitch it closes is wings and falls steeply, to recover and mount again while still some height above the ground. Near the end of its fall, if the observer is close at hand, a whire can be heard, due to the pressure of the air in the wing-feathers. The song is a sweet but monotonous trill, traverse, without variation.

The nest is a slight pad of threads and soft vegetable fibres with a few feathers and pieces of fine grass. It is invariably placed on the ground either in a slight depression in the open or in the shelter

of a clod of earth, stone or tuft of grass.

The clutch consists of two eggs, but three are sometimes found, the eggs are moderately elongated ovals, slightly pointed at one end, with a slight gloss. The ground-colour is yellowish-, greenish- or greyish-white, marked fairly thickly and in a variety of ways with various shades of yellowish-brown, earth-brown and grey.

In size they average about 0.70 by 0.50 inches.

THE WHITE-EYE

Zosterops Palpebrosa (Temminck)

(Plate xi, Fig. 1, opposite page 264)

Description.—Length 4 inches. Sexes alike. The whole upper plunage greenish golden-yellow, the concealed portions of the wings and tail dark brown; a white ring round the eye, emphasised in front and below by a black mark; thin and throat bright yellow; lower plunage grerisha-white; under tail-coverts yellow.

Iris yellow-brown; bill black, bluish-grey on base of lower mandible: less plumbeous.

The bill is slender, curved and pointed.

The oil a science, curved and pointed.

Field Identification.—Plains and hills; purely arboreal; very abundant. A small, bright yellow bird with greyish-white breast and abdonen, islable to be mistaken for a Willow-Wren, but easily distinguished by the sharp little curved black beak and the white ring round the eye. The constant teer-teer noise jas ho distinctive.

Distribution.-The White-Eyes or Zosteropidæ are a large family of small birds spread over Africa, Southern Asia and Australia. The present species has a wide distribution in Asia and is divided into a number of races, of which we are concerned with four only, which differ only in small details of size and tint of coloration. The typical form is found from Sikkim and Bhutan eastwards to Assam and Yunnan, and southwards to Bengal and probably Orissa and the Eastern Central Provinces. Z. p. occidentis is found along the Himalayas from the extreme north-west to Nepal, breeding normally up to 8000 feet and even higher. In the plains it is found as far west as Kohat, and from there it extends through the whole of North-western India south to Mysore. In Sind it is unknown except for a small isolated colony in the mangrove swamps of Karachi. Z. p. nilgiriensis is the race found in the Nilgiri and Travancore ranges, while Z. p. salimalii is confined to the Eastern Ghats as far north as the Godavari. In the main a resident species the White-Eye is also locally migratory.

Habit, etc.—The White-Bye is a purely arboreal species which practically never descends to the ground. It is found industrininately in all types of country where there is sufficient tree growth, though it, perhaps above all, prefers gardens and hill jungles close to cultivation where there is a mixture of trees and flowering shrushs, and in consequence a variety of food; for it feeds both on insects, weevils, ants, and their eggs and larvay, and on vegetable matter, such as small buds,

seeds and wild fruits.

Except when separated up into pairs for breeding the White-Rye is found in small parties and in flocks, which do not as not as one associate with other birds but hunt buildy through the foliage, invariably coming to notice through a rather monotonous querulous blee-chee-chee or there-there not which is uttered all the time; they are very active and busy little birds, and when disturbed fly off still uttering their note to start operations afresh in another tree.

In the breeding season the males sing freely; the song is short and rather pretty. It begins so low as to be almost inaudible and becomes louder and louder until at the end it is almost harsh, and

this is repeated over and again without variation.

Most nests will be found about April, but there appear to be at least two broods, and the breeding season extends according to

locality from January to September The nest is a delightful little of

The nest is a deleptiul intite cup sing ince a minature Orloic's nest between two twigs, though very rarely it may be placed in an upright fork. It is usually composed of very fine grass-stems, coarde exteriorly with obsevles and studed with small coops and pieces of vegetable down, but in shape, depth and materials it is somewhat variable. In site, too, there is no uniformity. Many nests are placed in undergrowth and bushes not higher than 6 feet from the ground; while as many are built in large trees, mangoes being perhaps the favourite, at any height up to 60 feet.

The clutch varies from two to four eggs.

In shape the egg is a somewhat lengthened oval, a good deal pointed toward the smaller end; the texture is very fine, practically without gloss. The colour is a very delicate and pure pale blue or greenish-blue, without markings.

The average size is 0.62 by 0.47 inches.

THE YELLOW-BACKED SUNBIRD

ETHOPYGA SIPARAJA (Raffles)

Description.—Length 6 inches, including elongated central pair of tauli-feathers i niche. Male : Front of crown metallic-green; pae brownish-green; sides of head and neck, back and smaller wing-coverts dull crimon; rump bright yellow; larger wing-coverts and quills dark brown, the feathers edged with brownish-olive; tall violetment of the control of

Female: Upper plumage, including the sides of the head and neck dull olive-green; wings and tail dark brown, the feathers edged with golden olive and the outer tail-feathers tipped with whitish; the whole lower plumage dull olive-yellow; a pale yellow patch under the

The immature male resembles the female but has the chin and throat pinkish-red.

Iris dark brown; bill blackish-brown, lower mandible horny-brown; legs chocolate-brown.

The bill is long, slender, curved and sharply-pointed with minute serrations along the cutting edge of both mandibles towards the tip. In the male the tail is graduated, the central pair of feathers exceeding the rest by 1 inch and being sharply pointed.

Field Identification.—Male, scarlet with a yellow rump and olivegrey abdomen and long pointed tail; Female, short-tailed and nondescript olive colour, darker above. Bill sharp, thin and curved. A shy and active forest bird, found feeding at flowers,

Distribution.—The typical race of the Yellow-backed Sunbird is found in Sunatar. In our area we are concerned with four other races.

The West Himalayan race (E. i. mussoriemis) and the East Himalayan race (E. i. stherice) agree with each other in plumage as described above but the western bird is slightly larger. This is apparently a summer

visitor to the outer ranges up to 7000 feet, but is not known to occur west of Dharmash. \mathcal{R} . s. where is found in the Eastern Himalaysa at similar elevations and extends also through the greater part of Assertable 1000 this the phains and in the hilly up to 7000 feet. It is also found at the contract of the found in Negative 1000 feet of 10000 fee

There are several other Sunbirds of the long-tailed genus Æthopyga which are locally common. The best known are the Nepal Yellow-



Fig. 40-Yellow-Backed Sunbird (1 nat. size

backed Sunbird (*M. nipalensis*) with the whole head and hind neck metallic green and the lower parts yellow fleeked with red, and the Black-breasted Yellow-backed Sunbird (*M. saturata*), a very blackishlooking species with violet and blue metallic feathers. Both are

common in the East-tilt assume to have been excerded about the balist of the various messed of the Valious-backed Smither. It is very largely and the valious messed of the Valious-backed Smither, it is very largely and the properties of the various proceed forest, more especially evergreen forest, and it is also to be particularly partial to rations for breeding purposes. At Dharmsaha a few used to come into my garden to visit the blossoms of a large carage-bala, covered with samine, at the side of the house, and they also fed from the flowers of a red gladiolus, a yellow it is an a seed with a small red flower. The its flowers were prierced by the bird with a tiny hole at the base, the mouth of the flower being district the process of the proces

The breeding season in the Himalayas is from April to July but the Western Ghats race (eigera') apparently nests somewhat later, from May to October. The nest is pear-shaped with the entrance at one side and this is sometimes shaded by a little porch.

The nest is usually slung from the roots of plants and bushes which are exposed by the nin washing away the sides of banks, but odd nests may be found attached to small bushes and even hamboo sprays. The materials vary a good deal. Some enest look like a mass of fine black rootlets loosely felted with grass; others appear to be a tangle of wind-blown cobwers which have caught in a branch. Oddlenests of all kinds are added as external decorations. The interior is lined with fine largest setters and the bottom of the exity is thickly flight with fine silly gass stems and the bottom of the exity is thickly flight with fine silly a sill of the control of the con

The clutch consists of two or three eggs. In shape they are broad blunt ovals, fine and very fragile in texture with no gloss. The ground colour is white or creamy, flecked, speckled and even blotched with brick-red, reddish-brown or brown, the markings tending to form indistinct case or zones at the larger end of the egg.

The egg measures about 0.6 by 0.45 inches.

THE PURPLE SUNBIRD

(Plate iii, Fig. 3, opposite page 48)

Description.—Length 4 inches. Male in summer plumage: The whole head, neck, upper plumage, throat and breast metallic-black with greenish-purple reflections; flight-feathers dall brownish-black; tail bluish-black; a narrow band across the breast coppery-brown, of varying extent and sometimes absent; remainder of lower plumage dail purplain-black; a brilliant tuft of crimson and yellow feathers under each wing.

Male in winter plumage, assumed only from about September to December, resembles the female with the addition of a broad stripe of dark metallic-violet from the chin to the abdomen. It retains the dark wings.

Female: Upper plumage, wings and sides of the head and neck greenish-brown; tail dark brown, the outer feathers narrowly tipped with white; lower plumage rather bright yellow.

Iris brown : bill and lees black

Bill long, curved and sharply pointed, with minute serrations along the cutting edges of both mandibles towards the tip.

Field Identification .- Abundant garden bird in the plains; a minute

bird with a long curved beak; male metallic-black, female brown and yellow. Active and feeds about flowers.

Distribution.—This Sunbird has a wide range in Southern Asia from Pensi on the west to Cochi-Chiao on the east, and a divided into races. The typical race is found in Ceylon and from about 2000 feet along the Outer Himalsyst throughout the whole of India except in the north-west. There in Sind and Baluchiann it is replaced by the Pensia from C. a. hereinarity, with a shorter bill, while birds from the Punjab are mostly intermediate in character between the two races. In the main a resident species, it is also locally migratory, being found in North-western India only from March to September. In the ranges of Southern India is found up to 7500 feet.

The very similar Loten's Sunbird (Cimmyris lotenia) with a much larger beak is common in South India up to Bombay on the west and the Nallamallais on the east. In some areas it replaces the Purple

Habiti, etc.—From their small size and brilliant metallic plumage and occasional habit of hovering in front of a flower this and other Indian members of the numerous family of the Necturiniide are responsible for the frequently found belief that Humming-birds securi in India. The true Humming-birds are, however, confined to America and its islands, and they belong to a totally different Order of birds allied to the Swifts and Nighttars.

The Sunbird resembles the Humming-bird in being largely dependent on flowers for its food. It feeds at the blassmas of the various flowering shouls and trees, taking from them not only their near that their various small insects, caterplitars, pieders and flies that they attract, and in return assists to polluntar mars species. The accept the flower of Lorenthus heaves, caterplitars, pieders and flies care of the flower of Lorenthus have a distribution of the control of against the pole of the control of against the control of the control o

The Sunbird usually perches on the twigs and stems of the plant, fitting actively from flower to flower and indulging in a variety of gymnastics to reach the desired food; but when need arises it can bover with rapidly wibstaing wings though only for a short time. By this dependence on flowers it is emancipated from preference for any particular type of country. In the dry desert areas of the north-west

it flits and perches about the low-growing uck and wild caper; in the tropical forests of the south it feeds high from the ground about the blossoms of some lofty tree; and throughout its range it is a familiar garden bird attracting notice by the boldness of its visits to the flowers that line verandahs or grow over porches. Its swift darting flight and shrill chirping note also call attention to its presence, and it has the rare merit in India of being a good songster. For the male perches on the topmost twig of a tree with a good many repetitions of the sharp chirp and then breaks into a loud full song which seems surprisingly good for so small a bird and recalls the notes of a Canary or Willow-Wren,

The breeding season varies a good deal according to locality, and in different parts of India eggs may be found from January to August : most nests will, however, be found in April and May. There are at least two broods, and these are reared in rapid succession, sometimes even from the same nest.

The nest is a pear-shaped or oval structure with a small round or oval entrance at one side, often sheltered by a little projecting cornice. It is built of a most miscellaneous assortment of materials. hair, fine grass, twigs, dead leaves, chips of bark and fragments of decayed wood, seed cases, and scraps of rag or paper, all neatly plastered together with silky fibres and cobwebs. The whole structure is suspended from a twig by a short rope of these materials, and a pendant irregular tassel of the same generally hangs from the bottom of the nest.

The nest is generally placed some 3 or 4 feet from the ground, hanging under a bough or a bush, but occasionally it is attached to a hook or pendant piece of rope in the ceiling of a verandah. The interior of the nest is neatly and softly lined with seed-down.

The clutch consists of two or three eggs.

The egg is typically a moderately broad oval, somewhat pointed towards the small end, but the shape is rather variable. The texture is fine and fragile with very little gloss. The ground-colour is dull whitish with a tinge of green, grey or brown, and the markings consist of minute and ill-defined spots and freckles of grey, brown and dullpurple of various shades. In some eggs these markings are regular and thickly disposed over the whole surface; in others they chiefly collect in a zone or cap about the broad end.

In size the eggs average about 0.64 by 0.46 inches.



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topmost twis seree with a good many repeated and then be seen into a loud full song which seems for so smiles bird and recalls the notes of a Casara

The broading season varies a good deal second in different parts of India eggs may be found trues has least two broads, and these are reared to rapid see even from the same

The next is a pear-shaped or avail attracture was or oval entrance at one side others sheltered by cornice. It is built of a most manufacture assessment hair, fine grass, twigs, dead leaves, chaps of lace decayed wood, need cases, and accept of ray or plastered together with additional and advantage of is suspended from a rose to a deed supe of these states pendant pendan of the ne

The seed is seen the regard arms a or a feet from the sale hanging the second of the second seco a hook interior the seed of the seed

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in a zone or can about the broad end.

In size the eggs average about 0-64 by a-46 inches,



THE PURPLE-RUMPED SUNBIRD

INNYRIS ZEYLONICUS (Linnæus)

Description.—Length a inches. Male: Top of the head metallicillac; rump metallic-purple; remainder of upper plumage dall crimon; wings brown edged with rufous, metallic-like and dail crimon on the smaller coverts; tail black with pale tips to the outer feathers; sides of the head copper-brown; rich and throat metallicpurple; a collar below the throat maroon; remainder of lower plumage bright villow, white under the wind.

There is no separate winter plumage as in the last species.

Female: Upper plumage ashy-brown; wings brown margined with ufous; tail black with pale tips to the outer feathers; an indistinct white line above the eye, with a dark line below it through the eye; checks, chin and throat pale ashy-white; remainder of lower plumage yellow, white under the wings.

Iris dull red; bill and legs black.

The bill is long, slender, curved and pointed, with minute serrations

Field Identification.—Central and Southern India. A minute bird of brilliandly variegated, partly metallic, plumage in the male, Illac on the head, crimson on the back, purple on the throat, and yellow below. The female is dull in colour with a white throat contrasting with the vellow under parts. Active in trees about blossoms.

Distribution.—A purely Indian apecies. It is found throughout India south of a line passing through Khandesh, Raipur and Sambalpur in the Central Provinces, and Lohardaga, Burdwan and Dacca in Bengal; also in Ceylon. In the Nilgiris it is found up to 250 feet. This is the Common Subnird of Bombay, Madras and Lower Bengal.

A resident species.

The Small Sunbird (Cinnyris minima) is common along the Western Ghats from Bombay to Travancore and also in Ceylon. It is the smallest of the group in India, and the male is very brilliant with a green cap,

competition to construct the construction of t

The breeding season is very extended, nests having been found in almost every month of the year, but normally the bird appears to be double-brooded, nesting about February and August.

double-brooded, nesting about February and August.

The nest is a most lovely structure, similar to that of the Purple
Sunbird, a hanging purse with the entrance near the top on one side

The body of the nest is chiefly composed of very fine grass or vegetable fibres, and it is thickly studded exteriorly with scraps of lichens, spiders' webs, fragments of bark, diried petals, and a variety of similar materials. The egg cavity is thickly lined with vegetable down or feathers. The nest is suspended from a fine tvig, over which the top of the nest is firmly worked with fibres and down, and a tausel of the same material as the outside covering of the nest often

The clutch consists of two eggs. The egg is a moderately broad ovar, arther clongated and pointed, with a delicate close-grained the almost devoid of gloss. The ground-colour is a dingy greenish- or provenish-white; it is freckled, clouded and streaked with milest greyish-brown markings, which tend to collect in a zone or cap about the broad end.

In size the eggs average 0.65 by 0.47 inches.

ICKELL'S FLOWER-PECKER

ICEUM ERYTHRORHYNCHOS (Latham)

Description.—Length 3 inches. Sexes alike. Upper plumage ashy-olive, the feathers of the crown with dark centres, and the concealed portions of the wings brown; tail dark brown; lower plumage buffy-white.

Iris brown; bill pale fleshy-livid, darker above; legs bluish-

Bill curved, sharply pointed and finely serrated along the cutting edges.

Field Identification.—A tiny office bird with paler under parts, and a cut-deba, which rather resembles a female Sunbird. Has a sharp not need to support the support of th

Distribution.—Confined to India, Ceylon (separated as D. e. ceyloneme) and Southern and Western Burma. It occurs along the Himalayan foot-hills, up to elevations of 4000 feet, from Kangra to Assam. South of the foot-hills it is found virtually throughout India except in the dry regions of the North-west, i.e., North-west Frontier Province, Baluchistan, the Punjab, Sind, and Rajputana. It is a resident species, and in places like Bombay and Poona very abundant.

Habits, etc.—Tickell's Flower-Pecker is a bird of far more importance than would seem to be warranted by its multi size and inconspications plumage; for its distribution appears to be entirely desired in the presence or absence of the hamful parasite plants of the genus Loranthus, and the spreading of these parasites appears in turn to be largely the work of the Flower-Pecker.

In Western India, for example, Loranthus longiflorus is found on over a hundred species of trees and in particular it is a serious scourge to the mango. Its beautiful clumps of flowers will be noticed up on the trees in every month in the year and a little observation will show that this Flower-Pecker, which is entirely arboreal, seems to have regular feeding territories in which it flits about the Loranthus at all hours of the day. The bird is very restless. It flies from tree to tree, often high in the air; it flies from clump to clump and on the clumps it hops from bunch to bunch of flowers; and all the time it utters a loud, almost incessant squeak chik-chik-chik, which is occasionally varied by a series of twittering notes which might be called its song. Each berry is tested with the mandibles. If ripe it is plucked and swallowed, broad end first. After finding and bolting down three or four ripe berries, one after another, the bird retires to the extremity of some bareout. It is during this interval that the mischief is done : for hardly has the bird been there a couple of minutes than you see him becoming uneasy and presently one of the seeds is extruded, evidently with some effort. The seed is invariably extruded broad-end first and by a final the bird often pivots round from its normal crosswise position on the branch to one nearly along it. The extruded seed which is copiously each seed appears to pass out some three or four minutes after the berry was eaten. Immediately it has got rid of the unnecessary is conveyed not only to other branches of the same tree but to other trees in the neighbourhood.

The best line assess is from February to May

The nest is very similar to that of the Purple Sunbird, being a twig with the entrance high on one side. It is placed in a tree at heights of 10 to 20 feet from the ground. It is constructed of fine vegetable fibres, externally covered with colowles, small chips of bark, splinters

of rotten wood and the excreta of caterpillars, while the interior is lined with the softest, silkiest downs and fibres. The female sits looking was though the auteure.

One to three eggs are laid. These are rather elongated ovals, pure white and clossless.

In size they average about 0.58 by 0.41 inches.

THE THICK-BILLED FLOWER-PECKER

PIPRISOMA AGILE (Swainson)

Description.—Length 5 inches. Sexes alike. Upper plumage anly-brown, washed with olive-green above the tail; wings dark brown, edged with olive-green; tail dark brown, edged with olive-green, the feathers tipped slightly with white, growing broader on the outermost feather; sides of the head and neck ashy-brown; chin and throat white; remainder of lower plumage creamy-grey streaked on the breast and flunks with anyb-brown.

Iris orange-brown; bill bluish-slate, darker above; legs dull

The bill is short and coarse with the lower mandible unusually deep and swollen.

Field Identification.—A tiny dull-looking bird, ashy-brown above and dull creamy-grey below, with the breast faintly streaked. Has a sharp note and is purely arboreal, frequenting parasitic plants on trees. May easily be distinguished from other Flower-Peckers by the swollen-

Dittribution.—The typical race is found throughout India from the other-thils of the Himalayas, which it ascends locally to gooo feet, down to Ceylon. Ceylon birds are separated at P. a. explonicum. It is not found west of a line from Kangra to Sirsa and Barda or ceat of Sikkim and Midnapur. In Assam and Burma to Siam it is replaced by P. a. modelatum which is greener above and has the lower mandible in greener above and has the lower mandible of the size of

swollen.

Mabits, etc.—At first sight there is not very much to distinguish the habits of the Thick-billed Flower-Peter from those of Triclel's Dower-Peters. It is generally distributed and fairly common in well-browner-Peters. It is generally distributed and fairly common in well-charge to clump to clump of the parasitic Loranther that general the branches of trees, its feeding circuits are also well defined. It wice and notes are similar to those of the other species though they are perhaps distributed that the species though they are perhaps distributed that a being somewhat shriller and more metallic. It wiss its little tail from side to side as it feeds amongst the clumps. There is, however, a difference in the feeding habits of the two species.

and this is evidently correlated with the different types of beat. As has been related above, Tickell's Flower-Pecker swallows the riginant of the Lorenthus whole and voids the viscous seeds on to the pupil where it sais for digestion. The Thick-bit eller Flower-Pecker, hand, does not swallow the fruit entire. It plocks toff the clump and with is finch-the beat separates the fullsy viezar from the sticky zeed, swallowing the former and getting rid of the latter by scraping in 67 an enighbouring twig with a sweeping side-to-side motion of the head. In this way three or four berries are esten before the hird filte off again on its endless round. It will be noted that in this way the deposition of the seeds is confined to the neighbourhood of the parent clump and they are not dispersed to widely as by Tickell's species.

In addition to Loranthus berries this species feeds on a variety of other fruits, particularly those of the Lantana scrub and the figs of Peepul and Gulair trees. It also eats the soft juicy parts of Mhowa

flowers and small spiders

The breeding season is from February to June. The nest is a most remarkable structure, a small, rather full-bottomed, pure-like bug, hung from a small twig as nearly horizontal as possible, the entrance hole being immediately below the twig. It is composed of a felt-like fabric, so soft and plable that it may be roiled and unrolled in the hand; that is maste from three, spilices when and the down taken from the transport of the spiling of the properties of the spiling of the spilin

The clutch consists of two or three eggs, but four may be found. These vary a good deal in shape and colour but are typically rather elongated ovals, somewhat coarse in texture and without gloss. The ground-colour varies from rosy-white to a decided pink and it is speckled, spotted and even blottched with markings that vary from brownish-pink to claret colour. They are most numerous towards the broad and other forming a some or an

In size the egg measures about 0.65 by 0.45 inches.

THE INDIAN PITTA PITTA BRACHYURA (Linnæus)

Description.—Length 7 inches. Seess alike. Top of bead pale fulvous, with a broad black band down the centre, which is joined by a very broad black band from below the eye; a narrow white line over the eye; back and shoulders green; lower rump shining pale blue; tail black, tipped with dull blue; wing black with a compagnants white patch in the flight-feathers, and with the coverts green and blue: chin and throat white; remainder of lower plumage fulyous a patch of bright scarlet under the tail.

Iris dark brown ; bill black ; legs pale purplish-flesh.

Field Identification.-A coarsely-built bird with a short tail and strong legs, adapted for life in heavy jungle; plumage variegated with blue, green, black, white, fulvous and crimson, but not conspicuously bright in the shade though the lines on the head are distinct. Shape and upright carriage are distinctive.

Distribution.-This Pitta is found throughout almost the whole of India from Dharamsala in the Himalayan foot-hills to Sikkim, and Eastern Rajputana in the plains to Calcutta. Southwards it extends down to Ceylon. It breeds in the Himalayan foot-hills and in Central and Western India and in the former area is a summer visitor only, wintering in Southern India and Ceylon. Exhausted birds on passage sometimes take refuge in outhouses and other unexpected places.

Habits, etc.-The Indian Pitta belongs to a family of birds which has no equivalent in Europe. All its members are compact, stoutlybuilt birds with a short stumpy tail, broad rounded wings and long stout legs, and, as this structure suggests, they are essentially groundliving birds, hopping and running with great facility and spending only a small portion of their time either on the wing or in trees, All are of great beauty, and the distribution of the various members of the family is very sporadic and curious. Most of them occur to the east of our area but the Blue-naped Pitta (Pitta nipalensis), a large brown species with a blue hind-neck, is common in the lower ranges of the Eastern Himalayas and in Assam.

The nearly allied Long-tailed Broadbill (Psarisomus dalhousiæ) is found along the lower Himalayas from Mussoorie eastwards. It is a gaudy-looking bird, green with blue in the wings and tail, a black head and a yellow throat and is remarkable for the flat broad bill and the tail of narrow graduated feathers.

The Indian Pitta, by preference, lives in deciduous forest or scrubjungle, but it may also be found in gardens and comparatively open country, especially if there are small ravines overgrown with bushes and trees to afford it the cover that it requires. It is not shy and may easily be approached. It has a sweet call wheet pe-u or pea-to-yew, a loud, clear and far-reaching note which is uttered again and again. When calling, the head and shoulders are thrown right back, the chest out and the bill points upwards after the manner of a cock crowing. The food consists largely of beetles, ants and other insects,

The breeding season is from June to August.

The nest is a huge globular structure with a circular entrance at one side. It is composed of dry leaves and grasses wound round with strips of fibre or held together with twigs and roots, and is lined with

green leaves or fine twigs and roots. Some nests are found on the ground trees at heights from 10 to 30 feet from the ground.

The clutch consists of four or five eggs. In shape they are broad and regular ovals, so broad as to be almost spherical. The texture is

very fine and hard with a high gloss

The ground-colour is china-white, and the markings consist of snots, speckles and sometimes hair-lines of deep maroon, dark purple and brownish-purple, with secondary markings of pale inky-purple. These rich colours, together with the spherical shape and high polish, give the eggs of this species a very distinctive appearance.

In size the eggs measure about 1:00 by 0:86 inches.

The word Pitta is due to the latinisation of a Telugu word, meaning " small bird."

Description .- Length 14 inches. Male: Top of the head and crest crimson; upper plumage green, strongly tinged with vellow at the base of the tail; wings brownish-black washed with green, all the quills conspicuously spotted and banded with yellowish-white and white; tail brownish with narrow white bars, the lower surface washed with vellow; a broad vellowish-white line over the eve. white line below the eye from the base of the beak; throat and breast pale grevish; remainder of lower plumage greenish-white, with scale-

Iris dark pinkish-red, with an outer ring of pale pink; bill vellow, horn-coloured about nostrils; legs greenish-plumbeous.

This and the following Woodpeckers have these peculiarities of external structure. The bill is long and stout and modified into a cutting weapon with the end of the upper mandible vertical and chisel-shaped. The tongue is excessively long, worm-like and capable of great protrusion; it is supplied with viscid mucus from the large salivary glands and the point is horny and barbed. The toes are arranged in two pairs, the 2nd and 3rd toes pointing forwards, the 4th toe being directed backwards with the 1st toe or hallux. The tail

Field Identification.-Himalayan forest form: a medium-sized greenish bird with pale under parts scaled with black which climbs

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up the trunks of trees in a series of jerks, and moves from tree to tree with noisy undulating flight. Distinguish from a similar species the Black-naped Green Woodpecker (Péau comus), which is found in the same area and farther, eastwards into Assam and Barma; this has the lower plumage unscaled and only the front half of the top of the head crimson in the made.

Distribution.—This Woodpecker is distributed through Transcaspia, Baluchistan, Afghanistan, and the Western Himalayas; it is divided into two races, of which the typical race is found in the Western

Himalayas from the Valley of Nepal to Chitral and Gilgit, from about 5000 to 11,000 feet. A resident species with little, if any, altitudinal seasonal movement.

A very similar but smaller species the Little Scaly-bellied Green Woodpecker (Picus xanthopygeus) is locally distributed throughout India, but not west of a line from Ambala to Mount Aboo.

Habits, et.—This fine Woodpecker is

a common resident in the Western Himslays and is found in all types of forest, also occasionally wandering out into trees in the open cultivated country. It is not very sly, and is easily observed as it works it way up the trunk of a tree, now stopping to dislodge a piece of bark tit works it way only the trunk of a tree, and then hammering buttly with its chiellike beak at a piece of grub-infested wood. Occasionally if ego from the stopping wood. Occasionally if ego on the stopping mitter. When the stopping was a superior of the stopping mitter. When the stopping was a superior of the stopping mitter. When the stopping was a superior of the stopping mitter. When the stopping was a superior of the stopping mitter. When the stopping was a superior of the stopping was a superior of the mitter. When the stopping was a superior of the stopping was a superior of the mitter. When the stopping was a superior of the stopping was a superior of the mitter. When the stopping was a superior of the stopping was a super



The breeding season extends from March to May, but most eggs will be found in April. The nest hole is excavated in the trunk or

bough of a tree and consists of a passage running down from 20 to 30 inches into the nest chamber which is often a natural decayed hollow inside the wood. In this the eggs, five or six in number, are laid on this and dobies.

The egg is a rather clongated oval, somewhat compressed towards the smaller end. The texture is very fine and delicate, with a brilliant gloss; the colour is pure china-white.

The eggs measure about 1.28 by 0.93 inches.

THE BROWN-FRONTED PIED WOODPECKER

DRYOBATES AURICEPS (Vigors)
(Plate xiii, Fig. 3, opposite page 312)

Description.—Length 8 inches Male: Forebard and crown unber-brown; crest golden-yellow in front, crimson behind; sides of the head and neck and the chin white finely mixed with blake; ex-coverts very place brown; upper parts black, broadly barred with white across the upper back and shoulden; wings black, conspicuously spotted with white; tail black, the outer feathers barred with buffywhite; lower parts fubescent-white, tinged with yellow in the centre of the abdomen, straded with black, and bordered on the sides of the checks by a brown band which becomes black and breaks up into

The female lacks the gold and crimson on the crest which is merel

Iris crimson; eye-patch plumbeous; bill horny-plumbeous; legs

Field Identification.—Common West Himalayan form. A dullcoloured Woodpecker, black barred with white above, whitish with dark streaks below, a reddish patch under the tail and a yellow and brown top to the head, crested in the male with crimson. Quiet and familiar in its babits.

The complete red crown of the male and the black crown of the female easily distinguish the very similar Fulvous-breasted Fled Woodpecker (Dryobates macs) which is common at low elevations throughout the whole length of the Himalayas from about Murree castwards. It is also found in Lower Bengal and towards Vizagapatam.

Another common species, confined to the Western Himalayas particularly noticeable in Kashmir, is the Himalayan Pied Woodpecker (Dryobates himalayemis). This is black and white with the crown crimson in the male, but the back is black with a white patch on each shoulder, not barrel. In appearance the Sind Pied Woodpecker (Dryobates scindiamus) of the more barren areas of North-west India is very similar. Distribution.—Found throughout the Western Himalyas from Chitral and Hazara to Nepal at elevations between 2000 and 7500 feet and in smaller numbers up to 9000 feet. Herie it is a resident

feet and in smaller numbers up to 9000 feet. Here it is a resident species, but it is also found in Afghanistan, and from there wanders

in winter into the Samana and Kohat.

Habit, etc.—This is the ordinary common Woodpecker of the hill attains or the Western Himsulays from Murre to Mussonie; It is found chiefly in the forests of oak and cheel pine, but wanders not have a forest of the standard point, but wanders not have a neighbourhood of man. I have known a pair roost neighbourhood of man. I have known a pair roost neighbourhood of man in the standard point of a forest rest. The standard one winter a single bird slept regularly in a nest-box affixed new steen one or busse.

The call-note is a rather loud plaintive pools, repeated at regular and monotonous intervals. It is traced to its source with difficulty and monotonous intervals. It is traced to its source with difficulty as the sound at times can be very ventriloguisal, and then at last the top of an calc, continuously disting at the extremity of some dead abough at the top of an calc, continuously experience to the continuous of the continuous contin

The breeding season is in April and May. The nest hole is the usual cleanly excavated tunnel and nest chamber in the trunk or large bough of a tree, and no nest is made, the eggs being laid on chips and debris at the bottom of the hole; very occasionally a natural hollow in a tree is used. The site of the nest may be at any height from

5 to 40 feet from the ground.

The clutch varies from three to five eggs.

The egg is a rather lengthened and pointed oval, fine and glossy in texture, and pure unmarked white in colour.

In size it averages about 0.92 by 0.68 inches.

THE MAHRATTA WOODPECKER

DRYOBATES MAHRATTENSIS (Latham)

Description.—Length 7 inches. Male: Forehead and crown brownish-yellow, a small crest scarlet; back of neck smoky-brown; back and shoulders brownish-black and white irregularly mixed; wings blackish-brown heavily spotted with white; tail blackish-brown, spotted with white, which from below appears full vescent;

chin and throat and the front and sides of the neck whitish, with a brown stripe on the sides of the neck which breaks up into longitudinal streaks on the sides of the breast; remainder of lower plumage streaked with brown, a bright scarlet patch in the middle of the lower abdomen.

The female lacks the scarlet on the crest.



Mahratta Woodnecker (4 nat. size)

Iris deep red; eye-patch plumbeous; bill clear plumbeous; legs

Field Identification.—Abundant plains species. A small dingy Woodpecker, spotted sooty-brown and white on the upper parts with a brownish-yellow top to the head, and in the male a scarlet crest.

Distribution.—This Woodpecker is found in India, someon Ceylon, Upper Burma, and Cochin-China. In India it is found from the foot of the Himalayas, which it ascends to about 2500 feet, down to the extreme south. In the north-west it is found at Peshawar

and Rawal Pindi, but it is scarce to the west of the Indus and in Sind and Rajputana, nor is it found in South-eastern Bengal. It is a strictly resident species. The typical race belongs to Southern India, and northern birds may be separated as L. m. aurocristatus, but the line of demanation is not very market.

The Indian Pygmy Woodpecker (Dryobates hardscichii) is well dissributed throughout India south of the Himalayas, except in Sind and the greater part of the Punjab and Rajputana. Its dull plumage and small size—for it is only as big as a Sparrow—readily distinguish it from the rest of the family.

Another species, the Himalayan Pygmy Woodpecker (Dryobates manus) is found along the foot-hills of the Himalayas.

Habit, rec.—This little Woodpecker, though common, is somewhat basely distributed, and it avoids both the drier, more open plains and heavy forest. It is a bird of cultivation and groves, roadside aremus, inse scrub-jungle and gardens, and in such localities if feeds quietly on the tree-trunks and branches, paying little or no attention to passers-by. Owing to its amust like it is rather at to get into trouble with other change in the particular of the control of the control of the opinit their endeavours to treppes a courageous bird and resists with spirit their endeavours to treppes a courageous bird and resists with spirit their endeavours to treppes spirit their endeavours to treppes (see the property of the property of the property season. Like many other Woodpeckers, this species drums with its beak on a dead bough, apparently as an outlet for sexual emotion.

The ordinary call-note is a rather weak peek, uttered at short intervals.

The breeding season lats from February to April, but most eggs will be found in March. The next hole is accavated in a bough of a tree, usually one leaning out of the perpendicular, and the entrance below is made on the underside of the bough. It is small, about 17 inches in diameter, and the entrance tunnel is about 15 inches long. No next is made, the eggs being laid merely on chips of wood at the bottom of the irregular claumber to which the tunnel leads.

The clutch consists of three eggs. These in shape are a rather lengthened oval, fine and glossy in texture, and pure white in colour.

In size they average about 0.87 by 0.68 inches.

THE RUFOUS WOODPECKER

MICROPTERNUS BRACHYURUS (Vicillot)

Description.—Length to inches. Sexes alike. The whole plumage chesturul-frown, didler and darker on the lower parts and with the following markings; top of the head washed with dusky brown, the feathers slightly paler at the edges; upper parts from the mantle and the wings and mil-feathers with black transverse bars; a patch of feathers under the eye tipped with crimson; feathers of the chin and throat broadly edged with fulvous.

The plumage is very variable. The colour varies from dull to bright chestnut or bay and the head from chestnut to dark brown while

The female is said to lack the patch of crimson under the eye, but there seems to be some doubt about this and I have had no opportunity of verifying the fact by dissection.

Iris brownish-red; bill blackish-brown, base of lower mandible

plumbeous ; legs and feet greyish-brown.

The first toe is very poorly developed.

Field Identification.—A chestnut-coloured Woodpecker with a certain amount of black barring on the back, wings and tail and a squamated throat. Found in open country and largely dependent on

Distribution—There are three races of the Rufous Woodpecker in our area. Microperus b-phinocept, as described above; is found along the Eastern Himalayas from Nepal to Upper Assam, in Assam, Bengal and Bilari, in the Cheo Nagquar area and rarely in the Central Powinces (Balaghat and Chanda). It is also found in Burna and Termasserim. M. b. humof from the Western Himalayas (Cadrelua disk Kommon) is alightly larger and paler. M. b. lusha, a smaller leaf with supergrammation dark consequences of the control of the control of the supermation of the consequence of the control of the control over bills, in the Sheveroy Hilli and in Ceylon. All races are birds of two developments on sea-level to about cope for to recognisingly good feet.

Habits, etc.—The Rufuna Woodpecker is not a bird of beiny forest. It prefers tea-pardens with light shade trees, open cultivated country with hamboo clumps or fairly open decidous forest. On occasion it enters banana cultivation and clinging to the smooth trunks of the abanana trees bores into the soft times near the base of the leaves and sucks the sap. It is not as a rufu sine sear the base of the leaves and country into the control of the same trees to the soft of the same trees to the soft of the same trees to the same trees the same trees to the same trees to the same trees the

It is, however, in connection with the Tree-sunts of the genus Cremutogenetre that one usually thinks of this Woodpecker. In the first place the plumage of the Bird is always meared with some gunnary substance, particularly on the head and breast and on the tail. It has also a strong peculiar smell and one presumes that both of these features are due to the formic acid of the ants and their larvae. These form a large part of the Bird's feod, but they also affect the plumage more directly. The ants are particularly ferocious; they are indeed attack and once they get hold of anything they never let go. As the

S 2

Woodpecker climbs a tree it is always meeting with the wandering ants and the plumage, particularly the tail, rubs against them. They seize the feathers and are rubbed to pieces but the heads remain, sometimes



Fig. 43-Rufous Woodpecker (4 nat. size)

The connection of ant and woodpecker is, however, still more intimate, for the woodpecker is dependent on the ant for its nesting-places.

The nests of the tree-ants of the genus Crematogaster must be well known to all who wander in Indian jungles. They look like large cellular balls of black papier-maché and measure anything from

8 inches to 2 feet in diameter and are built in trees and bamboos at any height from the ground between 7 and 70 feet, but most often between 10 and 30 feet. They are usually built round the fork of a sapling and the material of the nest is exceedingly hard.

In thee ant-nests the woodpecker excavates its own nest bole, not when they are abandoned but whilst they are in active use and tensared by their own makers. The entrance tunnel is made at one side and the cavity is some g of 6 inches in diameter. The ants do not interfere with the sitting bird or the eggs and young, and the woodpeckers do not apparently interfere with the owners of the occupied nest. This remarkable situation is emphasied by the character of the eggs.

They are alightly elongated ovals, fine in texture and very strong and hard, and of course pure white. Their peculiarity is that the surface is mat instead of highly polished like most woodpeckers' eggs, and the shell is so translucent that the yolk does not give a pink tinge to the whole egg but shows through as a yellow ball.

The normal clutch consists of three eggs. The breeding season of

all Indian races is from February to June.

THE GOLDEN-BACKED WOODPECKER

Brachypternus benghalensis (Linnæus) (Plate xiv, Fig. 4, opposite page 336)

Description—Length 11 inches. Male: Top of the head and a creat height crimson, the feathers partly marked with black or white; either of the head and neck white, streaked with black along a narrow line at the edge of the crimson and in a broader band through the eye from the nostril to the nape; hind neck, lower back and tail black; upper back and shoulders rich golden-yellow, sometimes tinged with orange-red; wing-coverts black at the shoulder, gradually changing to golden olive-yellow, the smaller Feathers sported with furbreast white; flight-feathers brownish-black boldly apotted with roll and blue the outer feathers with the outer web often olive-yellow; ic shin, throat and fore-section of the order white stripes, this pattern gradually changing into that of the breast where the feathers are bous bands on the flanks and below the tail and black borders become belower abolatom which is practically white.

Female: Differs from the male in having the front half of the crown black, each feather being tipped with white.

Iris red-brown, eyelids greenish-plumbeous; bill slaty-plumbeous; legs dark greenish-plumbeous, claws dusky.

Field Identification.—Common plains bird. Found climbing up the bark of trees or thying from tree to tree with heavy undulating flight; black and white plumage with vivid crimson crest and brilliant golden back immediately catch the eye, while the loud call is a wellknown sound.

Ditribution.—Found almost throughout India and Ceylon as a resident species divided into races. A pale and much sported form, B. b. dilutar, is found in Sind, Baluchistan and the neighbouring portions of the Pumjab, grading on the edges of its range into the typical race which extends throughout Northern India from the foot-sills of the Himalayas to Esserten Bengal and Assam. It is found in the Central Provinces, but in Hydershad State grades into B. b. posteriolib, with much more black on the threat; this is found throughposteriolib, with much more black on the threat; this is found throughposteriolib, with of the control of the control of the control to Cape. Commits where the richly-colored B. b. bittermedia of Ceylon is small grant and radie.

This Woodpecker must be distinguished from the larger Tickell's Golden-backed Woodpecker (Chysocolaptes guttariation) and the vos smaller Golden-backed Three-toed Woodpeckers (Dimplius) incurasus and D. shorn's. All four are very similar in appearance but the Golden-backed Woodpecker may be separated by the black rump (as opposed to to red), by the presence of white spots on the shoulder and by having the china and throat spotted black and white (as opposed to white with certain defined black lines). Also the female has a red cert, absent in the others. Tickell's Woodpecker is found along the base of the Himalayas as far west as the jumms, the west coast from Ground Southern and Southe

The well-known Wryneck (Jynx torquilla) breeds in Kashmir and is a winter visitor to most parts of India. It is grey and brown like lichen-covered bark with the lower parts finely barred.

Habiti, etc.—The Golden-backed Woodpecker is one of the best-known of our Indian species, both from its brilliant coloration and from the fact that it is a bolder hird than most of its family. It avoids forst areas, and is found, by preference, in open, cultivated districts and gardens where avenues of ancient trees provide it with a happy hunting ground. In such places it lives singly or in pairs, climbing basily about the trunks and branches of the tree; it progresses in a series of jets-san ad always areas with the body in a perpendicular position with the head upwards; it virtually never perches on a twig or branch crossways, and when it wishes to descend a foot or two to search some special crevice in the bark it moves down backward with the same awkward cirks with which it ascends. The woodeful adarest.

tion of the structure of a Woodpecker to its needs is easily apparent. The strong claws grasp the crevices of the bark and from their position automatically till the cone-shaped body backwards on to the suff graduated tail which presess into the barks oft and their flow one weight increases the firmness of its stance. In this position the long neck affords a awing for the blows of the pickase beak which chip off the bark and rotten wood revealing the lurking places of insects and their larve. Then the long-barbed tongene, with its stickly alwin, a sextunded, collecting food from the bordings and crevices. At the same time it is curious to note that although this and other Woodpeckers do feed on the wood-boring larve of beedle made to the structure. These are mostly obtained on tree-trunks, though consists of any which might end to the control of the

The flight is heavy and undulating, with rapid noisy beats of the wings; and one bird often follows another from tree to tree.

The call is a loud harsh scream, of several syllables, which is uttered both from a tree and on the wing.

The breeding season varies according to locality, from Pebruary, to Idyy. The near blote is borred by the hirds themselves in the branch or truth of a tree, at any height from 4 to 40 feet from the ground. Normally the entrance, which is about 3 inches in diameter, runs in for a few inches horizontally and then turns downwards into a large oval chamber some 6 inches in diameter in which the eggs reat on chips and debris. But when tunnelling, the birds often hit upon a natural cavity in the wood which is then utilised, however deep or large it may be.

The normal clutch consists of three eggs. The egg is a long oval rather pointed at the smaller end; the texture is fine and hard with a high gloss, and the colour is pure unmarked milk-white.

It measures about 1-10 by 0-80 inches.

THE GREAT HIMALAYAN BARBET MEGALÆMA VIRENS (Boddaert)

Description.—Length 13 inches. Sexes alike. Head and neck black with deep violet-blue edges to the feathers; back and shoulders brownish-olive, the upper back streaked with greenish-yellow; a brownish-olive, the upper back streaked with greenish-yellow; a

broad patch above the base of the tail grass-green; wings blackshorown, washed with blue-green and olive-brown; tail green above, below blacksh, washed with pale blue; upper breast dark olive-brown; remainder of lower parts blue down the centre, striped yellow and brown on the sides with a scarlet patch under the tail.

Iris brown; bill yellow; legs greenish-horny. In this and the following species of Barbet the bill is large and

In this and the following species of Barnet the bill is large and somewhat flattened and swollen, with a wide gape fringed with hairs; the feet have the 1st and 4th toes directed backwards and the 2nd and 3rd toes directed forwards as in the Woodpeckers, but the claws are weaker, as the Barbets perch like ordinary birds and do not climb on perpendicular tunks and boughs.

Field Identification.—Himalayam form, best known by the call, a loud melaneholy mee-ou which resounds through a whole nullah. In spite of the gaudy plumage when closely examined, in the forest it appears a dark dully-coloured bird, chiefly conspicuous for the large vellow bill and the red patch under the tail. Purely abroreal.

Distribution.—This handsome Barbet extends from the Salt Range throughout the Himalayas into Assam and Burma and castwards to China. It is divided into two races, of which we are concerned with only one. This race, M.v. marchaltomus, is found throughout the whole of the Himalayas from Hazara on the west to Bhutan and Assam on the east. It breeds at elevations from 4900 to 8000 feet, and in winter moves down to a lower zone, even extending into the foot-bills and the plains that border thereon.

Habits, etc.—During the breeding season this Barbet is an inhabitant of shady wooded nullshs, preferably those clothed with deciduous trees, and though seldom seen, except when it ventures into roadside bashes after finit, is well known about the fill stations as a disembodied voice. The bird sits high up in some shady tree, uttering monotonously time and again its mourraful cray, a weird melanchely speece-of or mercon and an advantage of the state of the

The hillmen have a legend that the bird is the reincarnation of the soul of a suitor, who died of grief at the unjust termination of his lawsuit, and that eternally his plaint rises to heaven un-nee-ow, un-nee-ow—injustice, injustice.

In winter these birds collect into small parties and then move down into the lower and more open hill jungles, where they feed on various fruits and are then very tame.

The flight is strong and vigorous, with great undulations like the flight of a Woodpecker, the beat of the wings producing a similar noise. This bird breeds in May and June and expanses its own strong the control of the product of the control of

This bird breeds in May and June and excavates its own nest hole in the trunks and boughs of the larger trees, usually at a great height from the ground, but occasionally within easy reach. The entrance passage is usually short and leads into a rounded chamber in which the eggs rest on chips and debris; sometimes the passage leads straight into a natural hollow, which saves the birds the trouble of excavating an egg chamber.

The normal clutch consists of four eggs. They are variable in shape but are normally rather lengthened ovals, regular and somewhat obtuse at both ends. They are very fragile, fine in texture, and pure white with little gloss.

They measure about 1.37 by 0.98 inches.

THE GREEN BARBET

THEREICERYX ZEYLANICUS (Gmelin)

(Plate xiii, Fig. 1, opposite page 312)

Description.—Length to inches. Sexes alike. Head, neck and green, in places with narrow pale shaft-streaks; upper plumage bright green, in places with narrow pale shaft-streaks terminating in whitish spots; flight-feathers brown, edged paler; tail bright green, washed below with pale verditer-blue.

Iris reddish-brown; a large naked space round the eye to the base of the beak orange; bill dead fleshy-pink; legs light yellowish-

Field Identification.—Common arboreal plains bird, best known from its loud resounding call, hotur-hotur-hotur. In appearance a coarse green bird, with brownish head and a swollen conspicuous beak. Needs to be distinguished from the closely allied Lineated Barbet (Thereiceys, lineatin) of the Lower Himsdays, in which the pale stripes are much broader and the naked eye-patch does not extend the last each of this barb.

A third species of very similar appearance, but smaller, the Small Green Barbet (*Thereiceryx viridis*) is extremely common in the Shevaroys and along the west coast from Khandala to Cape Comorin.

Distribution.—This Barber is confined to India and Ceylon; it is divided into three races. The typical form, small and dark, is found in Travancore and Ceylon, T. z., conicept, the largest and palest race, is found in Northern India. Its distribution is suffer irregular; it is found in the North-west Provinces, and along the foot of the Humaliyas up to about ages feet as far west as Knappe and Gurdapur, in Eastern Guzzutt, the North-west Remaining and Gurdapur, in Eastern Guzzutt, the North-west of Codernal, and the Codernal and the Codernal, and the Codernal and Co

Habits, etc.—Like several other birds in Itolia, this Barbet is exceedingly well known by sound to many people who do not know it by sight. It is purely arborat, affecting richly-wooded and manipulated localities, especially in the neighbourhood of bills, which is access to an altitude of about 2000 feet. It feeds chiefly on the first of access to an altitude of about 2000 feet. It feeds chiefly on the first of an analysis of the first of the control of the control

The presence of the bird is, however, revealed by the call, which is one of the familiar sounds of India. It may be heard throughout the year, though it is most persistent or for January to Juneau the year, though it is most persistent in the bredling season urges the bird to its greatest efforts. It occasionally calls at night. The call is loud and monotonous and starts with a harsh soor of laugh, followed by a displiable call, which have however, butter-hotter-hotter, another method of expressing it is by a recention several times of the word Palvano.

The eggs are laid in March and April. The nest hole is a chamber excavated in one of the larger branches of a soft-wooded tree with a short entrance tunnel which is neatly cut and rounded. It is excavated by the birds themselves, and they work very hard and continuously until it is finished. The hole is at any height from 6 to 50 feet from the ground. There is no nest, the eggs being merely laid on chips at the bottom of the hole.

The clutch consists of two to four eggs, which are laid rather irregularly, so that eggs in different stages of incubation may be found in the same clutch. The eggs are somewhat clongated very regular ovals, dull white, slightly glossy and unusually fragile for their size.

They measure about 1.20 by 0.87 inches.

THE BLUE-THROATED BARRET

CYANOPS ASIATICA (Latham)

Description.—Length o inches. Sexus alike. Top of the head crimson, broken by a transverse black band above the eyes which turns backwards and borders the red over the ears; the transverse band has a yellow border in front; remainder of upper plumed grass-green, the flight-feathers blackish-brown, and the under surface of the tail washed with pale blue; sides of the head, chin, they and fore-neck pale verditer-blue, with a crimson speck on each side at the lower base of the beak, and with a large crimson spot on each side of the neck; remainder of lower plumage yellowish-green.

Iris brown; evelids orange; bill greenish-vellow, blackish above;

legs dingy green, claws blackish.

Field Identification.—Sub-Himalayan species with a conspicuous call kuttooruk; a bright green bird with a gaudy mixture of black,

crimson and blue about the head. Purely arboreal.

Dittribution.—This rather gaudy species is found from the Himalyaya to Assam, Burma and Siam, and is divided into several races, we are merely concerned with the typical form, which is a resident species throughout the Lower Himalyaya and the Sub-Himalyaya frorest method than a castwards, extending also into Lower Bengal, Assam and Burma. It is found from the level of the plains us to about 600 miles.

Habitis, etc.—The Blue-threated Barbet is found not so much in bick forest as in the more open bill jungles, where villages and cultivation have let in the sun and caused the growth of that rich and varied tree flora which is a great feature of the bower hills. In such places wild fruits of warious kinds are extremely common, and on these the Barbet aring in the middle of the willages. It is purely arboral and never descends to the ground, the variegated green plumage rendering it almost trivisible in the thicky floigaed trees. Invisible it may be but insudible it an ot, especially in the spring that of the product of the produc

The breeding season lasts from April to July.

The nest hole is exeasted in the trunk or bough of a tree generally a the height of 10 or 15 feet from the ground, a small or medium-sized tree being usually chosen. The entrance hole is only about a foot long, and in the nest chamber the eggs are laid merely on destinationally a pad of fibres, grass and other materials is found

The clutch consists of three eggs. These are pure white in colour, fine and compact in texture, sometimes with a slight gloss. The shape is a rather broad or clongated oval, somewhat pointed towards the small

The egg measures about 1.09 by 0.83 inches.

THE COPPERSMITH

XANTHOLÆMA HÆMACEPHALA (P. L. S. Müller) (Plate viii, Fig. 4, opposite page 176)

Description.-Length 6 inches. Sexes alike. A broad patch across the forehead and a broad gorget across the fore-neck bright glistening crimson; a streak above the eye and a broader patch below it and the chin and throat bright yellow; a golden-vellow band round the lower edge of the crimson gorget; a black band through the eye from the nostril and another from the gape below the cheeks, both merging into a broader black band which passes behind the ears and over the top of the head: remainder of the upper plumage olivaceous-green tinged with grevish on the back and sides of the neck and slightly streaked with vellowish on the back : concealed portions of the flight-feathers blackish: lower plumage vellowish-white, streaked broadly with olivaceous-green especially on the flanks; tail faintly washed below with verditer-blue

Iris brown; evelids dull crimson; bill black; legs coral-red, claws black.

Field Identification.-Plains species, purely arboreal, and most familiar from its monotonous call; a small heavily-built greenish bird with gaudy yellow, crimson and black markings about the head.

Distribution .- Widely distributed through the greater part of the Indian Empire and Ceylon, and farther eastwards to the Malay Peninsula, Sumatra, and the Philippines. In India we are concerned only with one race, X, h, indica. This is not found in Baluchistan, the North-west Frontier Province or the South-western Punjab. With these exceptions it is found throughout India from the outer foot-hills of the Himalayas below 3000 feet, right down to the south. It is, however, rare in Sind and Cutch and in Southern Malabar. A strictly

A very similar bird the Crimson-throated Barbet (Xantholæma rubricapilla), with the chin and throat crimson and the lower parts pale green unstreaked, is common along the west coast from above Goa to the extreme south. It is represented in Ceylon by a yellow-throated race.

Habits, etc.-The Coppersmith or Crimson-breasted Barbet is another of those Indian birds whose voice is more familiar to most people than its form. It is found in every type of open country where large trees abound and is purely arboreal, sitting and feeding amongst the green leaves with which its plumage assimilates, and never descending either to bushes or the ground. The flight is fairly strong and straight, with quick regular beats of the short wings, and the bird has

THE COPPERSMITH no hesitation in flying high from tree to tree, often for a considerable

The outstanding characteristic of the bird is its voice; the note is the tap of a small hammer on metal; and this is repeated indefinitely at regular intervals as if a veritable coppersmith were at work: its monotony can be most exasperating as the sound never changes or varies except that it is somewhat ventriloquial; when the bird turns its head from side to side the call appears to come from different directions, as if two smiths were smiting alternately the same anvil. As the thermometer rises so does the persistence of the bird grow, and then its note may be definitely included amongst the hot weather worries of India. It usually calls from near the top of a tree, sometimes indeed clinging to the side of an upright twig. The call may be heard throughout the day, but not after dark,

The food consists almost entirely of the fruit of the various species

The breeding season is from February to May.

The eggs are laid in a hole in the bough of a tree, which is used and lengthened year by year until it may attain the length of 4 or 5 feet. The entrance is invariably a neat round hole cut by the birds themselves, usually on the under surface of the bough; but though the gallery and nest chamber may both be the work of the birds themselves, the gallery often cuts into a natural decayed hollow which is then smoothed and used. When the passage of several years has lengthened the hollow unduly a new entrance is frequently cut nearer to the egg chamber. There is no nest, the eggs merely lying on chips and debris. The nest

The clutch consists of three or four eggs. They are long, narrow and nearly cylindrical in shape, very fragile and smooth in texture, with little or no gloss. The colour is pure unmarked white. In size the egg averages about 0.99 by 0.69 inches.

CORACIAS BENGHALENSIS (Linnæus) (Plate xiv, Fig. 2, opposite page 136)

Description.-Length 13 inches. Sexes alike. Top of the head mixed blues and greens, the quills being deep purplish-blue marked a broad subterminal band of pale blue, interrupted by the central pair of feathers which are dull greenish; sides of head and throat purplish-lilac, streaked with whitish; breast vinous, also faintly streaked with whitish; remainder of lower plumage pale blue.

Iris greyish-brown; naked skin round the eye gamboge; bill

blackish-brown; legs brownish-yellow.

The three front toes are more or less united at the base

Field Identification.—One of the best-known birds of India: a heavy lumpy-looking nondescript-coloured bird which, as it takes to flight, reveals glorious Oxford-blue wings and tail, banded with Cambridge-blue.

Distribution.-The Blue-Jay or Indian Roller is widely spread throughout India, Burma and Ceylon, occurring also to the west as far as Amara, and to the east to Siam and Cochin-China. Several races have been distinguished. The typical race extends from the Persian Gulf throughout Northern India to Eastern Bengal. In the southern half of the Peninsula and Ceylon it is replaced by C. b. indica, while the darker and more mauve Burmese bird is known as C. b. affinis. The Common Roller of Kashmir, however, which may be easily distinguished by having the lower parts pale blue throughout and by lacking the wing and tail-bars, is C. garrula semenovi, a race of the European bird. This species is very plentiful on migration in the plains of North-western India. It should be emphasised that these birds are in no way related to the true Javs which belong to the Crow family.

The Indian Roller is a plains bird, and does not ascend the Himalayes over about 4000 feet; while in the main a resident species, it is

locally migratory.

Habits, etc.-Under the familiar name of Blue-Jay this Roller is one of the best-known of our Indian birds. It is a bird of open country, avoiding heavy jungle and preferring cultivation. There is very little variation in its habits; except in the breeding season it is found singly, but is so common that single birds will be met all over the countryside every quarter mile or so. It chooses an elevated open perch on which to sit, a dead bough of an ancient tree, the woodwork over a well, a ruined building, a telegraph post or wire, or in default of something better, a thorn bush or stone heap. On such a spot it sits motionless, the bright colours concealed or blending with the variegated tints of an Indian landscape: but all the while the large dark eyes are watching the ground in every direction; and a grasshopper has only to walk along a blade of grass, or a cricket or mouse to emerge from its burrow, and the Roller has launched itself straight at the spot to capture the toothsome morsel, settling on the ground beside it, and then flying back to its perch. To my last day in India I shall never lose the thrill that comes to me every time that I see the sudden transformation, as the dark lumpy bird reveals the banded glory of its wings and tail.

In early February the Roller betrays the secret of its name: its



sedateness is exchanged for the love flights in which it rises and falls in the air with wildly flapping wings and harb grating screams, advertising to all and sundry that Spring is in the air. The ordinary flight is strong and buoyant with slow but continuous flapping of the wines: occasionally it pursues insects on the wing, but this is not usual.

This bird is sacred to Shiva, who is said to have assumed its form. The breeding season last from the end of March until July. The nest is invariably built in a hole, either in a tree or a building. It is a formless pad of tow, vegetable fibres, grass, old rags and similar materials, but it varies in size according to the circumstances of the hole adopted, and occasionally the eggs are merely laid on debris and

The eggs are four or five in number. They are very broad ovals, sometimes almost spherical, highly glossy and hard in texture, of an

In size they average about 1-30 by 1-05 inches.

THE GREEN BEE-EATER

MEROPS ORIENTALIS Latham

Description.—Length 9 inches, including a inches for the elongated central pair of tail-feathers. Sexes alike. Entire plumage bright green, in places tinged with blue, markedly so on the chin and throat; the crown to the upper back tinged with golden-ferruginous; flight-feathers rufous, washed exteriorly with green and finely tipped with blackish; a mark in front and below the eye and a fine gorget-line black.

Iris blood-red; bill black; legs dark plumbeous.

Iris blood-red; bill black; legs and plantered are feeble with the The bill is long, slender and curved; the feet are feeble with the three anterior toes united at the base, and the two central tail-feathers

are long and pointed.

— Heild Identification.— Abundant plains species, easily identified by its long alender shape, with long beak and elongated central tail-feathers, and by the green plumage, with a coppery shear from the wings in flight. Smaller than all other Indian Bee-Eaters. Hawks

from tree and telegraph-wires.

Distribution—This little Bee-Eater has an extensive range from
Egyet through India, Ceylon and Burnat to Siam and Oochin-China.
In this wide area it has, of course, been divided into several near,
of which we are concerned with two. The typical race is found,
throughout India and Ceylon, with the exception of its interfaced by
North-west Frontier Province and Baluchistan where it is interfaced by
M. o. biladheideria, in ather paler bird with a bluer throat. While

ordinarily a plains bird, this Bee-Eater ascends the Outer Himalayas and other hill ranges occasionally to a height of 5000 to 6000 feet and even higher. It is locally migratory, though the movements still require to be worked out.

Habiti, etc.—The Green Bee-Eater avoids heavy forest and the worter tracts of India, and is most abundant wherever the country is open, frequenting both cultivation and desert areas. It is certainly one of the commonest brids of India, and attracts attention from its beautiful coloration and from its favourite perch being on the telegraphs wires. It also settles on trees, low bashes and walls, but only visin the ground for nesting purposes, the small and weak feet rendering the bird inappable of progression by wallking or hopping: Ills the order Bee-Eater is respond is to life hawking insects from a perch to which it returns after every flight, usually carrying a captured insect of some size which is battered to death and eaten there. The flight is free and graceful, and when the Bird is travelling it is smowthat undulating. The note is a pleasant, cheerful but rather monotonous trill, tree-tree-tree, which is usually uttered on the wing.

These birds are fond of living in small parties and they are very social at the roost, two or three hundred often collecting to sleep in a clump of trees.

The breeding season lasts from the middle of March until the beginning of June.

The eggs are laid in a circular chamber reached by a tunnel excavated in the ground, usually in the face of a perpendicular bank or cutting; the entrance tunnel may be anything up to 5 feet in length, and the opening is circular and very nearly cut, all the work being done by the birds themselves. No next is built, the eggs being merely laid on the bare floor of the cuttiv.

The clutch varies from three to five eggs. They are nearly spherical in shape, pure milky-white in colour without markings, and the texture is hard and brilliantly glossy.

They average 0.75 by 0.7 inches in size.

THE BLUE-TAILED BEE-EATER

Merops superciliosus Linnæus (Plate xiii, Fig. 2, opposite page 312)

Description.—Longth 12 inches, including elongated central pair of latal-feathers a inches. Seves alike. A broad black streak from the beak through the eye, bordered narrowly above and broadly below by bies upper plumage green tinged with trufous passing on the rump into verditer-blue; the wings more rufous-green than the back and tipped with blackish; tail verditer-blow, dark brown below, the long central pair of feathers tipped with black; throat chestnut passing into green on the breast, and this in turn into blue under the tail.

Iris crimson; bill black; legs dusky-plumbeous.

The bill is long and curved, the three exterior toes are united about their bases, and the central pair of tail-feathers are elongated and pointed, projecting 2 inches beyond the others.

Field Identification.—Common plains species, partial to the neighbourhood of water. Easily identified by long slender shape, with long sharp bill and central tail-feathers; distinguish from Green

Bee-Eater by large size, chestnut throat and greenish under parts and generally duller coloration.

Distribution.—Throughout the greater part of the Oriental region.

We are concerned with only two races. M. s. javanicus, as described

We are concerned with only two races. M. s. jaranitar, as described above, occurs from India, Ceylon and Burran to Jaza. It is generally but locally distributed almost throughout India, except in Sind. It occurs along the foothills of the Himalsyas up to about 1900 feet. Occurs is more of a desert bird and is confined in India to parts of the North-west. It is a bluer, less bronzy-green below; there is more blue on the sides of the head and the upper surface of the tail is green.

The European Bee-Eater (Meropr apiaster) breeds very abundantly in Kashmir. The brilliant yellow throat and blue under parts immediately identify it, whilst the brown and yellow upper parts are conspicuous in the field.

Habits, etc.—This fine Ree-Eater is common in well-entitivated and open country, provided it is not to day. It is particularly partial to the neighbourhood of ware, and may be found in large flights on the banks of riverd provided in the control of the large flights on the banks of riverd provided in the large flights on the banks of riverd provided in the large flights on the banks of riverd provided in the large flights on the banks of the large flights of the banks prech on open to telegraph where, and continually dart into the air to take a passing insect which they take back and eat on their perch: but it is a familiar sight, especially in the evenings, to see a flock furfilling along through the air, flying fast with heating wings for a few yards and then sorting with stiff open pinions, eathbig insects as they go. The call-hote is freely uttered on the wing and is a rather mellow and characteristic sanish.

The breeding season is from March to June. The birds nest in colonies, excavating their nest holes in the face of natural banks or in mounds like those that mark the site of old brieck-kilns. The eggs are laid on the soil in a rounded chamber which is reached by a tunnel some 4 to 7 feet long. This tunnel is usually not quite straight.

The clutch normally consists of four of the eggs.

The egg is pure white with a very high gloss and fine hard texture.

In shape it is a spherical oval.

The average size is about 0.88 by 0.75 inches.

THE PIED KINGFISHER CERYLE RUDIS (Linnæus)

Description.—Length 1z inches. Male: Top of the head with a small crest black streaked with white; a conspicuous white line over the eye; a black line from the beak through the eye connecting with a narrow black line to the black gorget; an indistinct white collar on the hind neck; upper plumage mixed black and white; flight-feathers white with irregular black bars; tail white, with a broad black terminal band; lower plumage silvery-white with two black gorgets across the breast, the upper being the broader; some black spots on the sides of the throat and flanks.



Fto. 44-Pied Kinefisher (I nat. size)

The female lacks the hinder gorget and has the other broken in

Iris brown; bill and legs black.

The bill is long, heavy and pointed; the feet are weak, the outer toe being largely united to the centre toe.

Field Identification.—Common plains bird, always found by water,

and conspicuous for its habit of hovering and plunging for fish. Pied black and white plumage, with a big sharp bill.

Dittribution.—This Kingisher has a wide distribution from Egypt to China, but in India we are concerned only with the race C. radii leuconelimura, which is found practically throughout India, Burma and Cegion in the plains. It does not ascend higher than about 2500 feet in the hill mages, being replaced above that height in the Himalayase With the larger Himalayan Pied Kingisher (Ceryle legabris) of rather similar coloration. It is a strictly resident species.

Habits, etc.—The Pied Kingfisher is to be found in the plains wherever there is water, except in the midst of forest. As a breeding species it is largely confined to the banks of rivers, but having a voracious

appetite and strong flight it wanders far afield and appears at every jheel and tank, also to some extent visiting tidal creeks and backwaters where the water is brackish; in places it may even be found on the seashore.

In such situations this bird may readily be watched at its failing, for its very common and its diet consists entirely of small flish. It files over the water at a height of some 10 to 20 feet above the surface, and suddenly extending sight of a shoal of fish below checks itself dead in mid-air and hovers with the wings vibrating rapidly and the bill pointing perpendicularly downwards, as if taking am. From this position it plunges headlong into the water, and if the aim has been true it emerges with a small fish in the bill and files away with it uttering cites of satisfaction; but often the plunge is unsucceived as the small residence of the satisfaction o

The breeding season is very early, commencing about December and lasting until April. The eggs are laid in a circular chamber at the end of a runed, it to feet long, which is invariably excavated in a perpendicular bank face over running water. There is no near, but the floor of the enge-chamber is partly covered with fish-scales and similar debris from

The clutch consists of four to six eggs. They are very broad ovals, often almost spherical, of a hard texture with a high gloss. The colour

They average about 1-20 by 0-95 inches in size.

ALCEDO ATTHIS (Linnæus)
(Plate xiv, Fig. 5, opposite page 336)

Description.—Length 7 inches. Sees albe. Top of the head finely banded with black and blac; a band from the beak below the yee to the aide, able the its part of the beak below the yee to the aide, able that it is not of the yee; a broad moustaching the beak bands in the part of the yee; a broad moustaching the head of the yee to be able to the part of the yee; a broad moustaching the able to the part of the yee and the part of the yee to be able to be able to the yee to be able to be able to the yee to be able t

Iris dark brown; bill bill bill legs coral-red, claws dusky.

The bill is long, heavy and sharply pointed; the feet are weak, the 3rd and 4th toes being partly united.

Field Identification.—Generally common by water over which when disturbed it flies low and fast, uttering a hard sharp squeak; a small stout bird with disproportionately large beak and brilliant plumage, organ and blue above and chestnut below.

Butrilution.—The Common Kingfisher is a widely-apread species in Europe, Northern Africa and Asia, and has in consequence been divided into a number of races; of these we are concerned with three. $A.a._p$ pallatio of Western Sheirs and Persia is the bird which is a socommon in summer about the waterways and lakes of Kashmir, appearing in winter in Baluchistan and as far as Sind in the plains. $A.a._p$ hongolarities a smaller resident species throughout the plains of India, except in the extreme south, occasionally ascending the momentain ranges up to a leight of about Corpo or feet. Those reces differently in size but much blue plain.

A much larger species (length 15 inches) with a very heavy beak the Stork-billed Kingisher (Ramphaleyon capenii) is locally distributed through the wetter parts of India, Ceylon, Assam and Burma. The top of the head is brown, a collar and the lower parts buffy yellow and the back, winzs and tail creenish-blue.

Habiti, etc.—The Common Kingfisher is, as is well known, purely a water-bird, frequenting fresh water of every description, and occasionally also wandering to the confines of tidal creeks and the seashore. Its food consists of tiny fishes and various aquatic insects, larvæ and other occupiers.

Into Kinginster usually captures its food by pringing obliquely in the water from an overhanging bough, stump or clump of reeds or similar vantage point on which it sits motionless waiting for something to come within its reach; but at times it hovers over open water with the body erect at right angles to the surface, and some to to 15 feet above it, and from this position dives perpendicularly into the water.

The flight is very swift and straight, generally low above the surface to the water, and as the bird goes it uters a loud call dike which draws attention to the short shuttle-shaped form and brilliant colours of the passing bird. It is a very pugnacious species, and once a pair have established their right to a stretch of water they are very intolerant of the presence of others of their kind.

The breeding season is rather irregular, but the majority of eggs will be found from March to June.

The nest is excavated in the face of a perpendicular bank, generally at the edge of water, but occasionally at a considerable distance from it. The entrance tunnel is anything up to 3 feet in length, and is very narrow, about 2 inches in diameter; it terminates in a circular chamber

some 5 inches in diameter and 3 or 4 inches in height. The chamber and passage always contain minute fish bones disgorged by the birds, but no nest is constructed, the eggs lying merely on the floor of the chamber.

The clutch consists of five to seven eggs. These are almost spherical a shape, pure unmarked china-white in colour, of hard texture with a

In size they average about 0.8 by 0.7 inches.

THE WHITE-BREASTED KINGFISHER

HALCYON SMYRNENSIS (Linnæus) (Plate xiv, Fig. 3, opposite page 336)

Description.—Length 11 inches, Sexes alike, Head, neck and lower plumage deep chestnut-brown, with a conspicuous white patch extending over the chin, throat and central breast; remainder of upper plumage blue, tinged with greenish, a blackish band along the side of the wing; tilight-teathers black with a conspicuous white patch towards

Iris brown; bill dark dull red; legs coral-red, claws dusky.

The bill is long, very heavy and pointed; the feet are weak, the
and and 3rd toes being partly joined together.

Field identification.—Found over water or land indifferently, and one of the most characteristic birds of the plains. Noisy, and conspicuous with the heavy red beak, the white breast-parch set in deep chestnut and the greenish-blue upper parts; in tight the white wing-patch is very noticeable, as is the large beak.

Dittribution.—This handsome bird has an numbers easy, a Minor through Persia, India, Ceylon, Burma, and the Malay Peninsula to Southern China. Of the races into which it is divided we are concerned with two. The typical form, H.s. supremit, is found throughout the control of the control of

up to a long-ten doco teet. The standard accreted in this work Habita, etc.—Valle the other Kangdana, described in this work are purely water-birds, living clairly finds, this very repical King-faler is mainly a land but it appures after the manner of a Roller, and such small from on the ground from an elevated perch. It is sent very occasionally both to plunge ino water after his and to take innects on the wing. The flight is strong and direct, and us to take the contract on the wing. The flight is strong and direct, and use a found rearming or; in streed which is one of the leaniler nounds of

India. This species avoids heavy forest and actual desert areas, but is found in every other type of country, either wet or dry.

The breeding season lasts from March to July. The eggs are laid in the usual chamber at the end of a tunnel, which, as in the case of the other species, is excavated in the faces of banks and borrow-pits, usually, but by no means always, in the vicinity of water. The shafts of unbricked wells are sometimes selected as a nesting site.

The eggs are four to seven in number. They are almost spherical in shape, pure unmarked china-white in colour, with a hard texture and high gloss. As incubation proceeds they lose their gloss and become stained, and are sometimes covered with small black spots apparently the exercts of parasites.

In size they average 1.15 by 1.05 inches.

THE GREAT HORNBILL

DICHOCEROS BICORNIS (Linnæus)

Description.—Length 52 inches. Sexes alike. Head black; neck fulvescent white; upper plumage and wings black, a broad white bar across the wing and all the quills with their bases and ends white; tail and its upper and under coverts white, a broad black band near the end of the tail; breast black; abdomen white.

Iris, male blood-red, female pearly white; bill and casque yellow, tinged with red at the tip and with orange in the middle. In the middle is the front and back of the casque are black, together with the ridge of the bill just in front of the casque. In the female the back of the casque is red. Bare skin round the eye fleshy pink, cyclids black; legs greenish plumbeous.

Bill large, stout and much curved. A broad casque covering the head and the base of the bill, broad, flattened and rounded behind rising at the sides and projecting in two points in front. Conspicuous evelashes. Tail long and rounded. Toes joined at their base.

Field Identification.—Western Ghats and Lower Himalayas only. A large magainly forest bird of black and white plumage, unmistabable from the heavy double casque over the huge curved beak. Very noisy and in flight recognisable by the noise made by the wings. The white neck suffices to distinguish this species from the smaller black and white Hornbills of the genus Hybricatis found in the Western Ghats. Peninsular India and the Himalayas which have the neck black and the casque single.

Distribution.—Widely distributed from India, Assam and Burma through the Malay Peninsula to Sumatra. All but Sumatran birds belong to the typical race. In India this is confined to the Western Ghats from near Bombay to Cape Comorin and to the lower Himalayan ranges up to 5000 feet from Kumaon eastwards.

Habits, etc.—The Great Hornbill is a forest bird and generally keeps to the largest trees where it may be found in parties of half a dozen birds or upwards. It is difficult to overlook the presence of this species. In flight it may be heard a mile away by the loud droning



F10. 45-Great Hornbill (1 nat. size)

noise of the air rushing through the base of the outer wing-quills which are not fully covered by their under-covert feathers in the usual manner. In a tree they are noisy, apt to indulge in the most way.

The flight is an alternation of a series of happing predominates and of sailing with the wings motionless, but the flapping predominates and the flight is less undulating than in some of the other species of

The food mainly consists of fruit and this is picked with the tip

of the bill, jerked into the air and caught in the throat and swallowed These Hornbills are, however, omnivorous feeders and readily take insects, lizards, grain and other food, all of which is jerked into the air and caught in the manner described.

Nothing is known about the purpose of the curious casque, which is not solid but cellular and partly hollow in structure. Captive hirds are said to be very destructive, using the bill as a pickaxe-if this habit is general in the wild state it is possible that the casque is in the nature of a shock-absorber.

The breeding season is from January to April. The breeding habits do not appear to differ in any important detail from those described at length under the Grev Hornbill. The same nest hole is used year after year for long periods.

The eggs vary in shape from very broad ovals, obtuse at both ends to moderately elongated ovals, distinctly pointed at the small end. The shell is tolerably hard and compact but is very commonly covered with tiny pimples and roughnesses and in most specimens the entire surface is somewhat conspicuously pitted with pores. The of the nest is intolerably dirty the eggs become dirty and stained to a

They measure about 2.60 by 1.88 inches.

Description.-Length 24 inches. Sexes alike, Upper plumage light brownish-grey, with pale whitish streaks over the eyes; the cheek and ear-coverts blackish-grey; flight-feathers dark brown, fringed and tipped with grey or white; tail long and graduated, brown, each feather with a broad sub-terminal darker band glossed with green and a white tip; chin to the breast grey merging into white on the abdomen.

Iris red-brown : bill black, whitish about tip : feet dark plumbeous. Bill large, curved and laterally compressed, with a small pointed spur above, known as a casque: evelids furnished with lashes,

Field Identification.-A large ungainly grey bird with a long graduated tail and a small pointed casque on the top of the narrow curved beak. Arboreal plains species, with a peculiar squealing cry.

Distribution.-A purely Indian species. It is found from the base of the Himalayas at about 2000 feet throughout the better wooded parts of India, except from Bombay to Travancore along the Malabar Coast where it is replaced by an allied species, the Malahar Grey Hornbill (Tockus griseus), which lacks the casque on the beak. It is absent from the North-west Frontier Province, the Northern and Western Punjab, Sind, and portions of Eastern Rajputana. It is rare in the Gangetic delta of Lower Bengal which forms its eastern boundary. A resident species.

Habits, etc.-The Grey Hornbill is an entirely arboreal species. which is found about old trees in well-timbered, fairly open country, coming into gardens and avenues, and avoiding thick forest. It is found in small parties which fly about from bough to bough, eating the various species of wild figs and other fruits and seeds, green leaves, and a certain quantity of insects, such as hornets. When flying from tree to tree across the open the flight is heavy and undulating with



Fig. 46-Grey Hornbill (1 nat. size)

alternating flappings and glidings, and all the movements of the bird are clumsy and ungainly. The cry is a harsh squeal, distinctly reminiscent of that of the Common Kite.

The breeding season is from April to June, and, like other Hornbills, this species is chiefly remarkable for its curious nesting arrangements.

The eggs are laid without the construction of any nest in a large hole in the trunk of a tree, at any height from to feet upwards. The female enters the nest-hole and remains therein until the young are about a week old. She spends the first two or three days in plastering and strong and hardens into a clay-like substance. For this work she

When the work is completed only a narrow vertical slit is left.

about the width of a man's finger and two or three inches deep. After this the droppings are thrown out daily through the slit. The female is now completely a prisoner and is dependent on the male for all her food. This he brings held in his beak; he perches on a neighbouring bough and then flies to the entrance of the nest hollow, where he clines with his claws to the bark and feeds the female who extrudes the point of her beak through the slit to receive the food. This habit is perhaps responsible for the curious fact, observed in captivity with reference to some species of Hornbill, and perhaps connected with all, that at intervals the epithelial layer of the gizzard is cast in the form of a closed sack containing the seeds of fruit on which the bird has been feeding.

During the period spent incubating in the nest the female becomes very fat and dirty, and on first emergence is so stiff that she can hardly fly. In some species of Hornbill the moult apparently takes place during the period of imprisonment.

The clutch varies from one to five eggs. The eggs are broad rather perfect ovals, very fine and smooth in texture and without gloss. They are a dull uniform white with a creamy tinge, and naturally become somewhat discoloured as incubation progresses.

In size they average about 1.7 by 1.22 inches.

Description.-Length 12 inches. Sexes alike. Head and a long fan-shaped crest, the feathers increasing in length from front to back, rufous-fawn, the feathers of the crest broadly tipped with white and black; back and sides of the neck and a broad patch across the shoulders to the bend of the wing dull ashy-fawn colour; remainder of the back broadly banded with black and fawny-white, the bands continuing across the wing-coverts; quills of the wing and tail black, the primaries with a white band across their tips, the secondaries with three or four white bands evenly distributed throughout their length, and the tail with a single white chevron-shaped band near the centre; chin whitish; throat and breast pale rufous-fawn, ashy on the sides of the breast; remainder of the lower plumage white, largely streaked with black and ashy-grey.

Iris red-brown; bill horny-black, fleshy at lower base; legs plumbeous-slate.

The bill is long, slender and curved, with a very short tongue;

Field Identification.-The fawn-coloured plumage and the black wings and tail, banded with white, the long curved bill, and the broad fan-shaped crest, freely lowered and raised, put the identity of this species beyond all doubt at the first glance.

Distribution.-Widely distributed in Europe, Africa and Asia, the Hoopoe is divided into a number of sub-species, of which we

are concerned with three; these are not very easily recognised, and vary in small details of size and coloration. U. e. orientalis is the



and is also a resident bird. The typical form U, e, epops breeds in the Himalayas and in winter migrates southwards into the plains; at that season it is common in Sind, the Puniab and the United Provinces. The typical race has a patch of white in the longer feathers of the crown between the fawn and the black, this colour being either which are also slightly smaller. The southern bird is also more richly

Mention must be made of two curious birds-the Red-headed Trogon (Harpactes erythrocephalus) of the Eastern Himalayas and Assam and the Malabar Trogon (Harpactes fasciatus) from the is rose-pink and chestnut; the male of the latter is chestnut with a

black head and red belly. They are arboreal birds with soft mewing calls and remarkable for soft dense plumage and long square-ended

Habits, etc.—The Hoopoe avoids areas of thick forest and is found very commonly in open country, more especially in the neighbourhood of groves of trees, thin scrub-forest, and the outskirts of villages where it frequents mud-walls and deserted or ruined buildings. It feeds almost entirely on the ground and is very partial to grassy lawns, the neighbourhood of avenues and other similar localities favourable to the various ground-feeding larvæ which form the greater portion of its food. It walks and runs with great ease and methodically quarters the ground, probing the roots of grass and the interstices of the soil or turning over leaves and rubbish for the insects, caterpillars and grubs that shelter there. When disturbed it flies up into trees or on to buildings, but does not usually feed anywhere except on the ground.

While feeding the crest is depressed and closed, but it invariably erects it for a moment on settling after flight. Ordinarily the flight is slow and hesitating with a good deal of undulation as if the bird were uncertain of its destination; but its extended migrations and wanderings show that this weakness is only apparent, and the bird has no difficulty in avoiding capture by trained falcons, mounting easily into the air away from them.

The call is a loud rather mellow hoot or hud repeated two or three times, which has given rise to the names current in various languages, all onomatopæic in origin. There is also a harsh grating note which is generally used at the nest.

The presence of definite names for this species in numerous languages indicates the hold that the Hoopoe has obtained on the imagination and interest of man from the earliest ages; nor is this strange in view of its tame disposition and striking appearance.

Realistic portraits of the Hoopoe have been found in mural paintings both of ancient Egypt and of Crete, and from that time onwards mention of the bird runs through literature and legend to the present day. In Western legend the bird is most familiar as the form assumed by Jereus, King of Crete, for his punishment; while Mohammedan countries regard the bird as the favourite and confidante of Solomon whose magnificence dowered its crown. The Hoopoe is the Lapwing of the Bible. The most prominent attribute of the bird, however, in literature, is its use in magical or medical prescriptions; use of its different parts is recommended by various authors, most frequently in connection with visions or the power of memory, from Egyptian days down to the Pharmacopaia Universalis of Dr R. James (1752).

The breeding season extends from February to July, but the majority of nests will be found in April and May.

The nest is a very poor affair, being merely a slight collection of grass, hair, leaves or feathers, placed roughly on the floor of the hole selected. For the site the chief requisite is darkness, and the bird nests in holes of every sort, in trees, walls and roofs, or even on the floor in closed and deserted buts.

When breeding the female develops an unpleasant smell, and as she seldom leaves the nest, being largely fed therein by the male, and never cleans it out when the young are hatched, the nest becomes very offensive and smelly; this fact was well known to the classical authors, and doubtless accounts for the Hoopoe being "unclean" in the Jewish law. It is, however, freely eaten by Christian populations

The clutch varies from three to ten eggs, and as incubation commences with the laying of the first eggs, there is generally a good deal of variation in the size of the young in a nest

The egg is a rather lengthened oval, often somewhat pointed at the smaller end, and sometimes also at the broader end as well. The texture is smooth and hard and without gloss. There are no markings, a dirty brown.

The egg averages about 1.00 by 0.66 inches in size.

Description.-Length 6 inches. Sexes alike. A broad white band across the rump, and the chin and throat white, the feathers more or less dark-shafted; remainder of the plumage dark blackish-brown, somewhat glossy, paler on the top of the head and under the tail,

Iris dark brown ; bill black ; legs vinous-brown.

Bill short and hooked with an excessively broad gape; wings stiff and sickle-shaped, specialised for great speed; tail short and surfaces, the four toes being directed forwards, though the first is more or less reversible.

indicating the extreme specialisation of its structure. Abundant over towns and villages.

Distribution.-From North-western Africa through South-eastern Asia, India, Ceylon and Burma to the Malay Peninsula. It is divided

into races, of which we are concerned merely with the typical race This is found throughout India and Ceylon, very common in some places and wanting in others, with no apparent reason for its capricious distribution. In the Himalayas it is not common, but may be found up to a height of 6000 feet. It is locally migratory, but information on this point is sadly defective.

A similar but larger species, the White-rumped Swift (Microbus pacificus) is found along the Himalayas and in Assam, and with it in the Western Himalayas one meets also the Common Swift (Microbus apus) which lacks the white rump.

The Alpine Swift (Micropus melba) will be found locally and

Fro. 48-Indian Swift (1 nat. size)

seasonally common throughout the Himalayas and India. It is twice the size of the Indian Swift and can be easily recognised by having the under surface of the body white, with a dark band across the breast. of the genus Hirundapus (Himalayas and South-western India) are probably the fastest flying birds in the stiff and pointed ends of the shafts of the tail-feathers which extend beyond the vanes-like needles.

Habits, etc. - The Common Indian Swift is highly gregarious, being usually found in flocks of fifty or more individuals, which breed together in colonies, and spend the hours of daylight in company hawking insects and small beetles, often at an

immense height from the ground. The nest colonies are perhaps most frequently found about buildings, whether these be the ordinary dwelling-houses of an Indian village or town, or ruined temples, shrines and forts. They also nest under bridges and rocks on steep bill-sides or in precipitous nullahs.

The birds occupy these nest colonies continuously. Not only do individuals breed somewhat irregularly so that a large colony will be found at any time to have eggs or young in some of the nests, but the nests are also used for sleeping and resting. Otherwise the whole of their life is spent in the air, rushing with swift curving flight, several rapid beats of the wings and then a glide, and at times uttering the curious squealing call which so aptly seems to express the fierce joy of an aerial creature in its element. The flocks usually feed in loose

open order, but at times, especially in the evenings, they collect together into a "ball," mounting high into the air as a squealing

Owing to its highly specialised structure this Swift is quite unable to perch on a tree or to visit the ground. Should it tumble accidentally to the ground, the short curious feet and the long stiff wings do not allow it to take off and rise again without the greatest difficulty.

The nest colonies are very conspicuous; they consist of a number of large globular nests composed of feathers, grass and straws cemented together with saliva so as to form a tough material. These nests are constructed on the under surfaces of rocks or roofs singly, or in a mass with one nest built against another; while in some instances the nests are built inside a hole with merely a little material plastered around snap may send them half torpid to their nests.

the small end: the texture is rather frail and almost without gloss.

THE PALM-SWIFT

* Description.-Length 5 inches, Sexes alike, Dull brown above head slightly darker, wing and tail feathers much darker; beneath

Iris reddish,; bill black; legs dusky-brown.

Bill short with a wide gape; toes arranged in two pairs, the 1st and 2nd inwards, the 3rd and 4th outwards; tail deeply forked;

Field Identification.-Aerial in its habits, hawking in company round palm-trees; distinguish from the Indian Swift by its smaller

Distribution.-This Swift is found throughout Ceylon and the only found about Mount Aboo. It is represented by another race,

breeds in some other species of palm. The nest is built in the palm and the birds spend their lives hawking for insects and small beetles 306

D SWIFT 307

in the vicinity, flying round and about with a rather irregular flight which is somewhat slower than that of most species of Swift. They sometimes cluster together on the leaves of the palms between the ribs of the fronds, and move up and down the leal with a shuffling mode of progression owing to the shortness of their legs; calonies of bats are found in similar situations and a single tree may contain a colony of both bird and mammal.

Although the birds live in colonies, not more than two or three pairs usually nest in the one tree. It is interesting to note that in the Garo and Naga Hills where the people thatch thirt houses with palm-leaves the allied race, T. b. infumatus, nests in the leaves on

the roofs as well as on the trees.

The breeding season lasts almost the year round according to locality, and at least two broods appear to be reared.

The great fan-leaves of the palm get bent by the wind and hang down so that the points of the leaves turn somewhat inwards, and it is to the under surface of that portion of the leaf which is bent inwards that the nest is attached. The bent portion of the leaf stands at an angle of from 40 to 70 degrees, so that the under surface becomes in fact an upper surface, and presents a sloping furrowed bank to which the nest is attached. In one of these furrows formed by the large pleas of the leaf, and slowys about the centre of this later as furnity pleas of the leaf, and slowys about the centre of this later as furnity table down or fine feathers comented together by the bird's own saliva. The main body of the nest is fairly soft, but the ring of the ring o

matted into a sort of cord to withstand the pressure of the bird's weight.

The usual clutch consists of three eggs, but four or five are sometimes laid.

The egg is a long oval, slightly compressed towards one end; the texture is fine, the colour white, and there is usually no gloss.

In size the egg measures about 0.70 by 0.45 inches.

THE INDIAN CRESTED SWIFT

HEMIPROCNE CORONATA (Tickell)

Description.—Length, 9 inches. Male: Crest dark ashy-blue; upper plumage dull ashy-blue, including the innermost flight-feathers; remainder of wings and tail black, glossed with gerein-blue; a velvet-black patch in front of the eye with a very narrow white line above it; a stress bloow the beat and a large patch behind and below the eye chestnut; chin paler chestnut; lower plumage ashy-grey becoming white under the tail.

Female: Similar to the male but the chestnut streak below the

beak is replaced by white and the chestnut patch behind the eye by the colour of the upper parts; chin ashy-grey.

Iris dark brown; bill black; legs pinkish-brown.

Bill short with a very wide gape; a distinct crest on the forehead; wings and tail long, the latter deeply forked; a patch of silky down feathers on each flank.

Field Identification.—An ashy-grey bird with wings and tail glossy blackish. The male has a bright chestnut patch on the ear. Resembles a Swallow rather than a Swift with its long pointed wings and deeply forked tail. Found in parties hawking insects and settling on trees.

Distribution.—Confined to India, Ceylon, Assam, Burma and Siam. No races. In India it is found locally throughout the whole



Fig. 49-Indian Crested Swift (2 nat. size)

country from the sub-Himalayan area southwards, except in the Punjab, Sind and parts of Rajputana. A resident species which occurs at all elevations up to 4000 feet and possibly higher.

occurs at a "The cree of Sort's a bird of forests and well-wooded country where it is found in small parties and sometimes even in flocks that havk about for insects with a wheeling graceful flight which in character and pace realist that of a swallow rather than a Swift. It constantly perches in trees, usually preferring the topmost branches and those which are dead or bare of leaves. It is as upright and erects the creat. The call is loud and Parrot-like, hid shi hid, and this is uttered frequently, both on the wing and from a branch whilst the hird is particularly noisy in the creat from the control of the cont

The nest is a most remarkable structure. It is a very shallow half-saucer, composed of thin flakes of bark and a few small feathers gummed together with inspissated saliva on the side of a horizontal branch. The nest is nowhere more than an eighth of an inch in thickness, and is at most half an inch deep in the deepest part. The largest outside measurement is 2 inches, which is to say that the nest can be covered by a crown-piece. The branch chosen is usually a dead one often at the top of a high tree, but many nests are built much lower on small trees growing in open scrub-jungle. Viewed from below the nest has all the appearance of a knot and would seldom be detected were it not for the fact that the female returns at frequent intervals to it. The single egg completely fills the nest. The parent bird sits across the nest and the branch to which it is attached so that the latter takes her weight

The egg is a very elongated oval, obtuse at both ends and with little or no gloss. It is white with a slight grevish-blue tinge.

It measures about 0.94 by 0.61 inches.

CAPRIMULGUS ASIATICUS Latham

Description.-Length 10 inches, Sexes alike. Upper parts yellowish-grey, with black elongated spots down the centre of the crown, and very narrow black shaft stripes on the back; on the hind neck a broad buff collar broken with dusky markings; a series of large black spots and bright buff markings on the sides of the back; some buff patches on the wing-coverts; the first four flight-feathers with a conspicuous white or pale buff spot; central pair of tail-feathers like the upper plumage but with narrow broken black cross-bars, the two outer pairs tipped with patches of white : lower plumage buff faintly barred and mottled with brown; a white spot on each side of the throat

Iris dark brown; bill dark brown; legs pinkish-brown.

This and other species of Nightjar have the following peculiarities of structure: Eye large and lustrous; bill short, weak and hooked, but when opened displaying an enormously wide gape fringed with long stiff hairs; three toes in front, one behind, the long central toe having the claw pectinated inside probably to clean insect scales from the gape bristles; the plumage is very soft and loose in character.

Field Identification.-A Nightjar is a large softly-plumaged, dullymottled brown and grey bird, with an erratic flight like a moth, which hawks about open spaces near trees as dusk turns into darkness.

Travellers by motor-car at night often find Nightjars sitting in the roads, their eyes gleaming uncannily in the light of the lamps. This is the smallest of the Indian species, and size and the call described afford the only chance of identifying it from the others in the field,

There are several Nightjars in India which are difficult to identify without close study, their call-notes and the arrangement of spots on the wing and tail being the chief guides. Franklin's Nightian (Caprimulgus monticolus) utters a loud grating chirp choo-ee which when close at hand sounds exactly like a whip-lash cutting the air. Horsfield's Nightjar (Caprinulgus macrurus) has a very loud resonant chaunk like the blows of an adze on a plank, with a surprising volume of sound when close. The Jungle Nightjar (Caprimulgus indicus) gives a monosyllabic chuck chuck chuck repeated some half a dozen times at the rate of five chucks in two seconds. The European Nightian



F10. 50-Indian Nightjar (4 nat. size)

(Caprimulgus europeus) whirs like a gigantic grasshopper. All these

Distribution.-Practically throughout India and Ceylon and in Burma down to about Moulmein. On the West it reaches portions of the Eastern and Southern Punjab and Sind, but is scarce and local in these two provinces, being replaced there by other species. Status uncertain, but probably locally migratory.

Habits, etc.—This is a bird of the plains and of open and cultivated country, where it is found in gardens and groves, often in the near vicinity of houses. It spends the day upon the ground sleeping in some secluded spot under a bush or tree, and only awakes to activity at dusk, being entirely nocturnal in its habits. With the dark it takes to wing and then hawks for insects, moths and beetles. The flight is very characteristic, a long-tailed, long-winged bird, flying like a moth. diving, now shooting straight upwards, with rapid flappings of the wings combined with gliding movements in which the wings and tail are widely extended. The whole performance takes place in absolute for an audible smack when the wing-tips meet above the head, and

THE CUCKOO

for a slight chuckling note which is occasionally uttered. The long

The breeding-call is very characteristic. It is best described as chak-chak-chak-char-r-r-r or tuk tuk tuk tukaroo resembling the sound of a stone skimming over the surface of a frozen pond, the note being repeated slowly at first and then more quickly; it is audible for a considerable distance. When perching on a tree the Nightjar sits lengthwise on a bough, not crossways after the fashion of most birds.

The plumage of this and other Nightjars, of which many forms occur in India, provide the most perfect example possible of protective coloration. During the long hours that the bird spends by day sitting motionless on the ground it is absolutely invisible, and it is unconsciously aware of that fact, only springing into life when the intruder

comes within a yard or two. To the huge mouth is due the name and the legend widely spread in many countries and languages that the "Goatsucker" feeds from the udders of cows and goats. It is considered of evil omen,

The breeding season varies, according to locality, from March to September. No nest is made, the eggs being simply deposited on the ground in some undisturbed spot, often under the shelter of a tree or bush. The clutch consists of two cogs.

The egg is a long cylindrical oval with very little difference in the two ends; the texture is fine and there is a slight gloss. The ground-colour varies from pinkish stone-colour to deep salmon-pink, blotched, clouded, spotted and streaked with different shades of pale reddish- and purplish-brown, with faint secondary markings of inky-purple.

The egg measures about 1.04 by 0.77 inches.

THE CUCKOO

CUCULUS CANORUS Linnous

Description .- Length 13 inches. Adult male: The whole upper plumage dark ashy, a patch at the base of the tail rather paler; wings browner and rather glossy, the quills being barred on their inner webs with white; tail long and slightly graduated, blackish-brown tipped with white, the concealed inner webs notched with white and with white spots along the shafts; chin, throat, sides of the neck and upper breast pale ashy; remainder of lower plumage white, narrowly barred

The adult female is rather browner in tint, and has an ill-defined and variable buffy-brown breast band. The female is dimorphic, having a rather scarce reddish "hepatic" phase.

Iris vellow; bill dark brown, lower mandible greenish; mouth rich reddish-orange: legs vellow.

Nostrils round; wing long and pointed; the tarsus is partly feathered in front; the feathers of the rump are long and thick and somewhat stiff, forming a sort of pad. Toes arranged in pairs, the 1st and 4th pointing backwards.

Field Identification .- Very Hawk-like in shape and swift flight; an ashy-grey bird with whitish under parts, barred with black from the breast downwards; presence in a breeding locality heralded by the well-known call long before the bird is seen, as it is shy and keeps

Distribution.-The Cuckoo has been succinctly described as a part of the Old World and even in Australia. Of the various races into which it has been divided we are concerned with two. C. c. telephonus breeds in Northern Asia eastwards to Japan and southwards to the Himalayas, but it is replaced in the North-west by the typical race, C. c. canorus, which is more broadly barred on the under parts. This breeds in the Himalayas and also apparently in some of the ranges of Central India. Both races in winter migrate to the plains of India,

Cuckoos also breed very numerously in the hills of Assam south of the Brahmaputra, and these may be separable as a third race under the name C. c. bakeri.

Three other species of the genus Cuculus are locally common in India and the Himalayas. In plumage they nearly resemble the Common Cuckoo, but their calls are very distinctive. The Himalayan Cuckoo (Cuculus optatus) has a dull booming note, hud-hud-hud-hud rather similar to that of a Hoopoe. The Indian Cuckoo (Cuculus micropterus) has a call of several syllables, variously described as bouko-tako, kyphul-pakka, orange-pekoe or kithe-toppan. The Little Cuckoo (Cuculus poliocephalus) is smaller than the others and has a

Habits, etc.-The familiar call of the Common Cuckoo, with all its treasured memories of the woods and meadows of an English Spring, is a welcome sound about the Himalayan stations, recognised and indicative of the Indian attitude towards nature that the hillmen appear to have no knowledge of the breeding habits of the Cuckoo or interest in the bird; for in Europe literature and legend have combined to make this one of the best known of birds, whilst its habits of imposing its domestic duties on other birds are familiar to

In the Himalayas the Cuckoo arrives about the end of March or beginning of April, and is noisy until about June. The calls of the male cuch-co or cuck-cuck-os sometimes preceded by a harsh house, some-norm are easily recognised, but the equally loud "" water bubbling " call of the female is not so universally known. In India the bird is found in every type of wooded country, but rather prefers open cultivation to heavy forest. The food consists chiefly of injurious insects, large hairy caterpillars being particularly favoured. The resemblance of a Cuckoo on the wing to a Hawk is most marked.

In its breeding habits the Cuckoo is a parasite, the eggs being laid in the nests of other species to whom the duty of hatching them and of rearing the chicks is entirely left. A great variety of fosteraparents are chosen, the favouries in India being perhaps various Pipits and Chats. In the majority of instances the Cuckoo settles on Pipits and Chats. In the majority of instances the Cuckoo settles on ease, however, this is clearly impossible from the site or size of the nest, and then the Cuckoo apparently clings to the outer surface of the nest or its containing site and ejects the egg from the vent into the nest early sometimes with unfortunate results.

When the young Cuckoo is hatched, a corious provision of nature comes into play. It proceeds to eject the rightful eggs or young of the nest by getting them on to its back and gradually pushing them over the side, to die unnoticed below the nest. A hollow formation of the back in the early days of the Cuckoo's life is obviously adapted to this purpose and the reason for it is evident. The great bulk of the Cuckoo, compared with the size of the foster-parents, requires all the food that the latter can bring. So great is this disproportion in size that the foster-parents frequently have to perch on the back of the voung Cuckoo in order to place food in its mouth.

In the Himalayas the Cuckoo lays in May and June.

Estimates vary as to the number of eggs that a hen Cuckoo lays, but it is believed that the number may reach twenty in a single season. No hen normally lays twice in the same nest, though she frequents one particular locality, and as far as possible prefers to lay in the nests of one particular species of bird. If two or three Cuckoo's eggs are found in one nest they are usually the produce of an amuy hens. The species probably does not pair, mating taking place promiseously.

The eggs are broad ovals, very blunt in shape, with the shell thick and heavy in texture and with only a slight gloss. They vary greatly in colour, the ground-colour being white, pink or stone-colour, spotted, streaked and mottled with brownish or yellowish-red and pale purple. Small black spots are nearly always present. Occasionally blue eggs was be found.

The egg measures about 0.97 by 0.72 inches.



1. Green Barbet. 2. Blue-tailed Bee-Eater. 3. Brown-fronted Pied Woodpe-

THE COMMON HAWK CHCKOO

HIEROCOCCYX VARIUS (Vahl)
(Plate xiii, Fig. 5, opposite page 312)

Description.—Length 13 inches. Sexes alike. Upper plurnage ashy-grey, the flight-feathers bowener and broadly barred with white on their inner webs; tail grey tipped with rufescent, and with four or fiver rufescent bars, the terminal bar broadest; chin and throat white tinged with ably; fore-neck and breast ruflous mixed with pale ashy, the lower breast with bars; abdomen white tinged anteriorly with rufous and partly barred with grey.

Iris yellow; eye-rim yellow; bill greenish, black along top; legs yellow.

Structure as in the Common Cuckoo. In this genus the remarkable resemblance of adult Cuckoos to Hawks is carried a stage further, in that the immature plumage also resembles the immature plumage of Hawks.

Field Identification.—Common plains bird, Hawk-like in appearance and arboreal in habits, and in the field not easily to be recognised from the Common Cuckoo except by its remarkable call of brain-fever; in the hand the bands on the tail are distinctive.

Distribution.—This species is confined to India and Ceylon. In India it is very generally distributed from the base of the Himalayas southwards. Its western boundary is roughly a line through Ambala, Jodhpur and Cutch, and on the east it has been recorded in North Cachar in Assam and Dacca in Eastern Bengal. While generally

speaking a resident species it is also locally migratory.

Habit, ret.—The Common Hawk-Cuckoo is a bird of well-wooded country, and it is almost entirely arboreal. Like most of the Cuckoo, it is remarkable for its voice, on account of which is it is usually salled the Brain-fewer bird, a name which is given removes by the Koel near where the Hawk-Cuckoo has the cucre also infinitely the more account of the control of the c

often becomes a very real nuisance. The call is uttered at any time of the year, but the bird is most vociferous from early spring into the rains, when it is breeding. The food consists of berries and fruits as well as insects, and like other Cuckoos it is very partial to those

hairy caterpillars which most birds will not eat.

The breeding season lasts from April to June and the bird is

parasite, laying its eggs in the nests of various labels; the leads as parasite, laying its eggs in the nests of various labels; the egg as distinguishable from those of leads to start of various labels; the eggs as similar deep blother, but it is somewhat larger as a rule, with a softer, more satiny sarface, a less glossy and thicker sholl, and a more spherical hape. It is almost, a loss glossy and thicker sholl, and a more spherical hape. It is almost impossible to distinguish between the eggs of the shape. It is almost impossible to distinguish between the eggs of the Hawk-Cuckov Lockov levels they come of the rightfull downers of the groung Hawk-Cuckov ejects the young of the rightfull downers of the

The egg measures about 1.00 by 0.8 inches.

THE INDIAN PLAINTIVE CUCKOO

CACOMANTIS MERULINUS (Vahl)

Description.—Length 9 inches. Male: Entire upper plumage data shy; wings dark brown, washed with greenish-bronze, the edge and a patch on the underside of the flight-feathers white; tail nearly black, the outer feathers banded obliquely on the inner webs with white; tower parts sably, paline to white under the tail.

Female: Whole upper plumage bright chestust, the back and might barred with black, the head, neck and runp irregularly spotted with black, the chest, neck and runp irregularly spotted with black; tall chestust, a few black marks on the shafts of the feathers, a black bar and a white the shaft of the feathers, a black bar and a white the act of each feather; lower parts white, lightly barred with black, the chin, throat and upper breast parts white, lightly barred with back, the chin, throat and upper breast parts white, lightly barred with back, the chin, throat and upper breast parts white, lightly barred with back, the chin, throat and upper breast parts white, lightly barred with back, the chin, throat and upper breast parts white, lightly barred with back, the chin, throat and upper breast parts white, lightly barred with back and the parts of the chineses and the chineses are the chineses and the chineses are the chineses and the chineses are the chineses

The plumages and plumage-stages of this Cuckoo are very variable, but the above are descriptions of normal adults.

Iris reddish-brown; bill dark brown; legs dingy yellow or brownish-grey.

The bill is slightly curved; wing pointed; tail graduated. The toes are arranged in pairs, the 1st and 4th pointing backwards.

Field Identification.—A small active Hawk-like bird with pointed wings and graduated tail which, in the rains, attracts attention by its loud plaintive whistle. The male is dark ashy-grey; the female chestnut above and on the throat and white below, largely barred with black.

Distribution.-Very widely distributed throughout India, Ceylon,

Assam, and Burma castwards to the Maly States, South China and Hainan. We are concerned with two roses. C. m. pastromian a beordinary Indian form which is found practically throughout the Peninsula down to Ceylon from the Outer Himalyses as far west as Abbottabad and as far east as the Brahmaptura. It is not, however, found in the Punjah Pikins, Sind, Cutch, Kathiswar or most of Rajustana. In the Himalyses it is most common in a zone between 1500 and 2000 effect, rurely occurring above foco feet. In the Peninsula it is found at all elevations. The Burmese race, C. m. querubis, is found in Assam, Eastern Bengal and cacabandly further west as far a Nepal, Behar, Raipor and the Cumbum Valley. In this form the male has the white of the lower patter epicache by fundas. Both necess are to some white of the lower parts replaced by prints. Both neces are to some

The Banded Bay Cuckoo (Penthocepy: sonserail) may easily be confused with the females of the Plaintive Cuckoos, as its upper plumage is banded with dark brown and bay and the lower parts are white, finely barred with brown. The heavier bill is distinctive. It is widely distributed in India, but is most common along the Western

Ghat

Habits, etc.—Like many others of the family this Cuckoo is best known to many by its call which well justifies the popular amas. The ordinary call is a clear loud plaintive whistle co-mer which is somewhat difficult to locate as the brid trans is head slower, goodscing a ventriloquial effect. There are also more complicated early and the state of the complication of the complication

The brending easens is in the rains from July to October. The bild a practice and is believed to by chelly in the seas of the Indian. Wern-Wartler, the Fantali Warbler and the Talloc-Sind. The eggs are long narrow ords with one on appreciably unaffer than the other. The shell is stout and heavy but fine in texture and there is, a night gloss. The ground-clouds is white or pile blue masked with light reddish blotches. The egg, therefore, agreement and the same through the same of the same of the same of the same of the throat of the same of the same of the same of the same of the problem of the same of the same of the same of the same of the problem of the same of the same of the same of the same of the problem of the same of the same of the same of the same of the problem of the same of the same of the same of the same of the problem of the same of the same of the same of the same of the problem of the same of the same of the same of the same of the problem of the same of the

The egg measures about 0.75 by 0.55 inches.

THE PIED CRESTED CUCKOO

CLAMATOR JACOBINUS (Boddaert)

Description.—Length 13 inches. Sexes alike. Upper plumage including the crest black, glossed with green; flight-feathern dark brown with a broad white band running through them; tail long and graduated, the feathers tipped with white, most broadly on the outer feathers; lower plumage white, sometimes sullied by the dark bases of the feathers.

Iris red-brown; bill black; legs leaden-blue.

Upper portion of the tarsus feathered; toes arranged in pairs, the 1st and 4th pointing backwards.

Field Identification.—A conspicuous bird black above, white below, with a white band through the wing visible in flight and white



Fig. si-Pied Crested Cuckoo († nat. size)

tips to the long tail-feathers; a rather noticeable crest. Arboreal, and attracts attention by the loud call.

Distribution.—This Cuckoo is found in a wide area in Africa (Abyssinia and the Sudan to British East Africa; also West Africa) and throughout India, Ceylon and part of Burma. In India it is found throughout the plains and hills alike, and in the Outer Himalayase extends up to about 8000 feet.

The typical race is a resident in Ceylon and part of the Madras Presidency. The rest of India and Ceylon is inhabited by a larger form, C. j. pica, which is migratory. Its movements have not been fully worked out, but there is good reason to believe that it winters in Africa.

The larger Red-winged Crested Cuckoo (Clamator coromandus), common in Assam and Burma, is found in smaller numbers in the Himalayan foot-hills from Garhwal eastwards and in Ceylon. It is a straggler in the Perinsula.

The Drongo-Cuckoo (Surniculus lugubris) is found in the Outer

Himalayas, Peninsular India and Ceylon. It is remarkable for its close resemblance to a King Crow (Dicrurus macrocercus) which must

cause it often to be overlooked.

Habilit, etc.—The Pied Crusted Cuckoo is a brid of open, wellwooded country, and as its partial to dump, well-watered localities it is a rains visitor only from June to August or September to a large portion of the Continent. Although mouth spirore, it is more ready than most Cuckoos to perch in low bushes near the ground, and some of its food is actually taken from the ground. The food consists chiefly of caterpillars, but ans, spiders, beetles, mealy-bugs, red-outon bugs and terrestrial molluses are also caten; a few green leaves are also exten, possibly for digestive reasons. It is neither sky nor realizing, also exten, possibly for digestive reasons. It is neither sky nor realizing, also exten, possibly for digestive reasons. It is neither sky nor realizing, also extend the state of the state o

In the north the breeding season is during the rains from June to August, but down in the Nilgiris the birds are said to lay from January to March, the period being determined in both cases by the habits of

local foster-parents.

The Pied Created Cuckoo is parasitic, and lays its eggs in the nests of Babbter and Laughing-Thruthes. The Babbters (Paradista somerzillei, Afryu caudata, A. carlii, and A. malcolmi) are the common fosterers in the plains, the Streaked Laughing-Thrush (Trochalopteron limeatum) in the Himalayas, and the Nilgiri Laughing-Thrush (T. cachimana) in the Nilgiris. The young Cuckoo ejects the rightful offscripe from the nest.

The egg is a very perfect oval, blunt at both ends, thick shelled, fine in texture and with a high gloss; in colour it is a very delicate

full sky-blue, varying somewhat in depth of tint.

It measures about 0.94 by 0.73 inches.

THE KOEL

EUDYNAMIS SCOLOPACEUS (Linnæus)

Description.—Length 17 inches. Male: Black throughout with

Female: Brown with an olive gloss, spotted throughout with white, except on the wings, tail, breast and abdomen which are barred

ith white.

Iris bright crimson; bill dull green; legs plumbeous.

The tail is long and graduated. Tarsus strongly scutellated in front.

The toes are arranged in pairs, the 1st and 4th pointing backwards.

Field Identification.—Purely arboreal, male black, female brown and white in spots and bars, and from its noisy cries of ko-el ko-el one

Distribution.-The Koel is found throughout India and Cerlon. though in the North-west Frontier Province and in Sind it is only



Fig. 52-Koel (male above, female below) (1 nat. size)

locally common. It is not found in the Himalavas and is scarce in the foot-hills at their base. East of the Bay of Bengal it extends as far as China and the Malay Peninsula, but these birds have been separated as another race. It is locally migratory, but its movements have not vet been worked out.

· Habits, etc.-This bird holds amongst Indians a position analogous

to the position of the Common Cuckoo in Europe, in that they are all familiar with its call and welcome its arrival, and to some extent are acquainted with its appearance, but on the other hand they mostly appear to be ignorant of its parasitic breeding habits.

whose shady boughs it finds concealment and whose fruits it eats. It never descends to the ground. The usual diet consists of fruit, especially of the banyan, peepul and other figs, but snails are also eaten.

The call is known to everyone in India. It consists of two syllables ho-el repeated several times, increasing in intensity and ascending in the scale, with an indefinable sound of excitement in it. This call appears to be uttered by both sexes and it is often heard at nightan unmistakable token of the hot weather. Another call ho-y-o is apparently the property of the male alone. A third call of the " waterbreeding notes and the bird is silent out of that season. In places

The Koel is parasitic on the Common House Crow (Corvus owner's eggs; the birds are numerous and it is not unusual to find two or three of their eggs in one Crow's nest, while as many as eight have been recorded. The breeding habits of this Cuckoo have not been sufficiently studied, but the young probably eject the eggs or young of the Crows, and it is said that the female Koel often feeds her own offspring after they are fledged. Great enmity exists between the adult Koels and House Crows, and the latter are often to be seen chasing the former; but considerable respect is due to the Koel as the one living creature that persistently gets the better of that clever

The male nestling Koel is black like the adult. The female provides an exception to the ordinary rules of plumage inheritance and is much

on the local breeding season of the Crows. The eggs roughly resemble Crows' eggs but are considerably smaller. They are a moderately

The eggs average about 1.20 by 0.9 inches in size.

THE SMALL GREEN-BILLED MALKOHA

RHOPODYTES VIRIDIROSTRIS (Jerdon)

Description.-Length 15 inches. Upper parts dark ashy with a green gloss which becomes much stronger and more metallic on the wings and tail; feathers of the tail broadly tipped with white; under parts dark ashy, the throat and breast streaked with grevish-white and the belly washed with fulvous yellow.

Iris claret, a fine outer ring white; loose crinkled bare skin round the eye sky-blue; bill apple-green; legs olive-slate; claws dusky.



Fig. 53-Small Green-billed Malkoha (4 nat. size)

Bill deep with the top of the upper mandible sharply curved; feathers of the throat and breast forked, there being no web to the end of the shaft so that the feathers look as if damp and partly stuck together;

Field Identification.-A clumsy-looking ashy-coloured bird with green beak and sky-blue evenatch and a long graduated tail tipped with white; found skulking in bushes and hedges.

Distribution.-Confined to India and Ceylon. It is a strictly resident species found in Orissa and in Peninsula India from Hyderabad State southwards.

The larger but very similar Green-billed Malkoha (Rhopodytes tristis) of the Central and Eastern Himalayas, Assam, Burma and further east is usually treated as a separate species. It has the eye-patch

Habits, etc.-This quaint Cuckoo is a very sedentary species and individuals appear much attached to particular localities, being usually to be found within a radius of a few hundred yards. They are met with singly or in pairs in lightly wooded and scrub country of the large hedges of Euphorbia. They are skulkers with much the same habits as the Crow-Pheasant, but unlike that bird are seldom seen on the ground, keeping more in the cover of low bushes and trees and

The food consists of large insects, grasshoppers, mantides, cater-

The nest is a slight structure of sticks, a mere shallow saucer, little better than that of a Dove, and it is lined with a few leaves which are fresh and green when plucked but of course soon fade. It is placed in the centre of a thorn bush or cactus some 5 or 6 feet from the ground.

The clutch consists of two eggs. In shape they are almost spherical being very blunt and rounded at both ends. The texture is fine, but very chalky and quite without gloss and the colour is dull white.

The egg measures about 1.12 by o.go inches.

Description,-Length 17 inches. Sexes alike. Upper surface, wings and central tail-feathers dark olive-brown, the wing and tailunder the tail olive-brown, very pale almost buff on the chin; abdomen dark rufous; the shafts of nearly all the feathers are dark glistening

brown, which is especially noticeable on the breast. Iris reddish-brown; bill cherry-red, yellow at the tip; legs

The bill is curved and sharply hooked; a curious grille of stiff black curved eyelashes with white bases protects the eye. Tail long,

Field Identification.—A large dull olive-brown bird with a heavy

tail and a striking red and yellow beak. Usually found walking about

Distribution.—Confined to Ceylon, India and Assam. In India it is very generally distributed and resident, but is absent or very rare north-west of a line from Simla to Jodhpur and Cutch. Divided into three races. The typical race is found in Ceylon and Southern India, certainly as far north as Hyderabad. T. I. sinkee from the Northern Punjah, Mount Aboo, Northern Guzerat, Cutch and Siml is a paler bird with a yellowish throat and breast. A darker and larger race, T. I. sinkees, is found in the Eastern Himalayas. These races all intergrade. Occurs at all elevations up to 6000 feet and even occasionally higher.

Habiti, etc.—The Sirkeer is by preference a bird of scrub-jungle, secondary growth, large gardens and other places where comparative quiet and freedom from disturbance are combined with patches of donese cover in which it can take refuge. It is largely terrestrial in its habits, stalking about the ground in search of a very mixed diet of fruits, needs and berries, grassbopers, bettless and other small fry. It is a poor filer and as a rule is very loath to take to wing, preferring the body in a borizontal position and stopping at intervals to raise itself and have a good look round.

The display savours of the grotesque, both birds taking part in it, opening their beaks and bowing low to each other, meanwhile expanding the tail to make the most of the black and white markings of the outer feathers. During the display curious clicking sounds are uttered, but the Sirkeer is normally a very silent bird.

The normal breeding season is not well known, but nests have been found from March to August.

The nest is a broad saucer-shaped structure of twigs lined with green leaves, usually those of the tree in which it is built. It is placed in some foliage-shrouded fork in a low or thick tree or even a bush and is seldom at any great height from the ground.

The clutch consists of two or three eggs. The egg is a broad, evy perfect oval with a rather coarse and chalky texture. The colour is pure white. Many eggs are covered with a pale yellowish-brown glaze of uncertain origin which is readily removed by washing or scraping.

The egg measures about 1.40 by 1.05 inches.

THE CROW-PHEASANT

NTROPUS SINENSIS (Stephen)

Description.—Length 19 inches. Sexes alike. Wings chestnut, the quilts tipped with dusky; the remainder of the plumage black, glossed with green, steel-blue and pumple.

Iris crimson; bill and legs black.

The bill is deep and rather curved; the wings are short and rounded; the tail long, broad and graduated; the feathers of the head, neck and breast are harsh and coarse; the hind toe has a long straight claw, recalling that of the Skylark.

Field Identification .- A big black bird with chestnut wings, which



Fig. 54-Crow-Pheasant (1 nat. size)

from its size and voluminous tail is often mistaken for a game bird. Common about hedgerows and gardens and feeds much on the ground.

Distribution.—The typical across from China to North Assam, the wide distribution, extending across from China to North Assam, the Himalayas to Kashmir, and the plains of Northern India down to Sind. South of Bombay and from the Ganges to Ceylon it is replaced by a grapiller form C. 5, parroti. It is an entirely resident species.

A much smaller species, the Lesser Coucal (Centropus bengalents), is found in the Himalayan terai, in Orisa and Bengal and South-western India. Whilst the adult resembles the Crow-Pheasant in coloration, the immature plumage with brown and white streaking

Habits, etc.—The Crow-Pheanant is one of the common birds of India, and owes this name, as well as the familiar sobriques to the India, and owes this name, as well as the familiar sobriques did offirm's Pheanant, to the fact that its heavy build and slow gait and its habit of feeding on the ground leads it to be mustaken by new arrivals in India for a game brind. It so voids forest, and is found in cultivation,

bush-jungle, or waste land, and is pre-eminently a bird of the braud strips of bush and tree growth mixed with pumpas grass which grow along the sides of village roads or the banks of rivers and canals. It is found also in gardens and about villages. In such situations it walks about sedately on the ground, picking up wasps, beetles, caterpillars, becuts and grasshoppers and catching small itzned, sankes, the pullars, becuts and grasshoppers and catching small itzned, sankes, the heavy masses of bush and grass. The call is a peculiar dull-bosoning sound, hood-hood-hood.

Although a member of the family of the Cuculidae, the Crow-Pheasant belongs to the big group of the non-parasitic Cuckoos. It is one of those birds that breeds in the rains, and eggs may be found from these Carteshar the second of the complete of the com

The nest is normally a large globular domed affair, with the entrance at one side from which the tail of the sitting bird project. Occasionally, however, a rough saucer nest is made. The nests may be placed at any height from the ground, either in the centre of a dense thomy bash or chump of pampas grass, or in exposed positions in the forks of trees. They are either fairly nest structure of dry twigs lined with green leaves, or loosely built balls of dry reeds and coarse cross.

The eggs vary from three to five in number.

They are broad, regular ovals, symmetrical at both ends; in texture they are rather coarse and chalky and dull pure white in colour; but the surface is frequently covered with a sort of pridermis of pale yellow-brown glaze which gives a certain amount of gloss and can readily the removed.

In size they average about 1.4 by 1.2 inches.

THE LARGE INDIAN PARRAKEET

PSITTACULA EUPATRIA (Linnerus)

Description.—Length, including long pointed tail, 19 inches Mais: Upper plumage grass-green, rather darker on the wings and brighter on the finehead and runny; a large deep red patch near the bend of the wings and the plumage grass of the plumage grass at the base into verding-local and feathers passing from green at the base into verding-local and into yellowish at the tip; lower surface of tail yellow; a dark line due, with a blindly-gree plumage grass and the size of the plumage grass and the plumage grass and the size of the plumage grass and the plumage grass and the size of the plumage grass and the plumage grass and the size of the siz

The female lacks the rose-collar and the black stripe that joins it.

Iris pale yellow with a bluish-grey inner circle; bill deep red; feet plumbeous.

In this and the following Parrakeets the bill is thick and deeper than long, the upper mandible is movable, sharply pointed and curred, coming down over the short square lower mandible; a fleshy cere at the base of the bill; tongue short, swollen and fleshy. The tail is very long and graduated, the central feathers arrow, pointed, and exceeding the others in length. The foot has two toes in front and

Field Identification.—Green plumage, massive head and hooked ord beak, long pointed tail, with flight and sceraming cries acceraing acrise scenaring cries accept for black chin and stripe and rose-pink collar) separate this from all other long large and the property of the property of

Distribution.—The Large Indian Parrakeet is found practically throughout India, Ceylon, and Burma. It is divided into four races which are separated on size and comparative details of coloration.

The typical race is South Indian, found in Hyderahad, Mysore, Travanceve, and Ceylon. P. e. njeljaenir is found in Northern and Central India from the valley of the Indias (though not indigenous to Sind), and the Himalysin forb-killi (typ to goof rely, and Assam down to Kamptee, Kaipur, Sambalpur, and the Northern Circus; also to the Satpura Range in Khandash. P. e. indidensemicar is found in Barma and P. e. nuguientiris in the Andaman Islands. A

Habits, etc.—This fine Paraket is found in practically any type of country in which large trees are numerous. It less in parties and flocks, which may be observed at all times of the year, though individual pairs often separate while breeding; but as many pairs usually breed together in suitable spots, the birds when off the nest are social and

The flocks collect to roost in large avenues and groves of trees, and in the evenings they have a very regular flight to such roosting places, travelling for miles to them at a great height with a swift direct straight flight. While flying they frequently utter the load shrill call.

The food consists of various grains, seeds and fruits, both wild and cultivated, and as the birds are numerous, large and greedy, they do a considerable amount of damage in cultivation. This species is a common cage-bird in Northern India and becomes very tame though it seldom learns to talk.

The breeding season is from February to April. No nest is made,

* Cere (from cera, wax) is a term applied to the soft, generally rather swollen skin which covers the base of the upper bill, especially well defined in

but the eggs are laid in holes in buildings and trees, usually at a cona deep natural hollow, but a certain amount of shaping and excavating

The eggs vary from two to five in number. They are broad and regular ovals in shape, stout and rather coarse in texture, with a slight gloss. The colour is pure unmarked white.

They measure about 1.12 by 1.00 inches.

THE GREEN PARRAKEET

PSITTACULA KRAMERI (Scopoli) (Plate xiv, Fig. 1, opposite page 336)

Description .- Length 16 inches. Male: Upper plumage bright green, washed with pale bluish-grey about the back and sides of the head and paler about the bend of the wing; median tail-feathers green at the base then bluish-grey, other tail-feathers green with yellow inner webs, tipped with yellow and yellow underneath; a fine except in front; chin and a band from the lower base of the beak to the rose-collar black; lower plumage yellowish-green.

The female has the rose-collar and black band replaced by an indistinct emerald-green ring.

Iris pale yellow; bill cherry-red, lower mandible blackish; feet dusky slate or greenish;

Field Identification .- Most abundant and well-known plains species, usually in parties: easily distinguished by the green plumage, massive hooked red bill, long pointed tail, swift arrow-like flight, and the harsh screaming notes. There is no red wing-patch in this species.

The Blue-winged Parrakeet (Psittacula columboides) of the Western Ghats and Nilgiris has the head and breast grey with a complete black ring (followed in the male by an emerald-green ring) round the neck. The green and blue wings are scale-marked with yellow.

Distribution.-The typical form is African. We are concerned with two races. The northern form, P. k. borealis, with the lower mandible either red or black is found from Baluchistan across to Assam and Burma. It intergrades gradually-and an arbitrary boundary may be fixed at the 20° of latitude-into P. k. manillensis of Southern India and Ceylon which is slightly smaller and darker and has the lower mandible black. This bird does not ascend the Himalayas above 4000 feet and it avoids most hill-ranges and tracts of unbroken forest. A resident species.

Habits, etc.—The Green Parrakeet is one of those species in India which everyone knows. It is excessively abundant, living in pairs in the breeding season, and gathering into parties and flocks at other times, which from their universality, the damage that they do in gardens and fields, their noisiness, and their brilliant coloration are known to all and sundry

Normally this Parrakeet is arboreal and it is a wonderful climber. being equally at home in every position, but it flies down to feed on crops and garden plants, and occasionally settles on the ground to pick up food-stuffs, and there its awkward sidling gait, due to the long tail and the short zygodactyle feet, is very quaint. But specially adapted for climbing and for holding food these feet amply compensate for their awkwardness on the ground. There is something especially sedate and knowing about the demeanour of the Parrakeets, which is further heightened when they sit on one foot and with the other hold up a piece of food to be eaten bite by bite. The flight is very swift and straight and these birds have the habit of an evening roosting flight, flock after flock hurrying in succession along the same line to some patch of trees where they roost in company with flocks of Crows and Mynahs. The ordinary call is a harsh, rather shrill, inarticulate scream, but when courting the male has a pleasant murmuring warble which he utters as he scratches the head of the hen with the point of his bill, and joins his beak to hers in a loving kiss. The hens are very accomplished flirts and their behaviour in the presence of the favoured male is most amusing. This species of Parrakeet is one of the universal cage-birds of India and it becomes delightfully tame; individuals may be taught to say a few words, but the best of them never talk as well as the African Grey Parrots.

The breeding season extends from February to May, though most eggs will be found in March.

No nest is made, but the eggs are laid on debris in holes in walls and buildings or more commonly in trees. The hole may be a natural one, but often the bird excavates a tunnel and chamber very similar

Four to six eggs are laid. The egg is a moderately broad oval, slightly pointed towards one end: the texture is hard and compact with a slight gloss, and the colour is pure unmarked white.

The average size is 1.20 by 0.95 inches.

THE BLOSSOM-HEADED PARRAKEET

PSITTACULA CYANOCEPHALA (Linnæus)

Description.—Length 14 inches. Male: Head red, washed with blue, giving the effect of the bloom on a plum, sharply defined with blue, giving the effect of the bloom on a plum, sharply defined with a narrow black collar from the chin round the neck; behind the black collar extends an area of verdigrie-green; upper plumage yellowisi-green, becoming verdigris on the wings and rump; the dependence of the wing; the median tuil-feathers pass from green at the besen do the wing; the median tuil-feathers pass from green at the bese into blue with conspicuous white tips; the remaining tail-feathers are largely yellow with the greater portion of the outer webs green; is were plumage bright vellowish-green.

The female has the red head replaced by dull bluish-grey (plumblue) and a yellow ring replaces the collars of black and verdigris.

Iris yellowish-white; bill orange-yellow, lower mandible blackish; legs dull green.

Field Identification.—Distinguish from the other species by the smaller and more slender build, the more pleasing call, the plum-coloured head (red-plum in male, blue-plum in female), the orange beak and the conspicuous yellow tips to the tail-feathers.

Care must be taken not to confuse the female with the slightly larger Slaty-headed Parrakeet [Pittacula himalayana] of the Himalayas in which both excess have a slate-grey head. It is useful to remember that the tip of the tail, usually very conspicuous in flight, is whitish in the Blossom-headed Parrakeet and bright yellow in the Slaty-headed Parrakeet.

Distribution.—The Blosom-headed Parakeet is found almost throughout India, Ceylon and Burna, extending still farther castwards to Cochin-China, Siam, and Southern China. It is divided into two races, of which we are only concerned with the Western and typical race. This is found in India throughout the plains to Mount Aboo, Sambhar and the Eastern Punjak, extending still farther west along the Himalayan foot-hills to the neighbourhood of Murree. It extends exastward to about Sikkim where it joins not to the range of the paler eastern form P. e. bengelmin. In the Western Himalayan it ascends to about 2006 feets. Locally imprised.

Habit, etc.—This beautiful Parrakeet is, to a large estent, a forest bird, though it is found anywhere also in well-wooded hut cultivated districts. Like other Parrakeets, it is a social species, being found in parties, which feed on seeds and fruits in forest trees; but this species very seddom descends to the ground. The flight is very strong and swift, faster than that of the other two species dealt with in this

work, and of the three kinds it has much the most musical call. It is not usually kept in captivity by the natives of India.

The ordinary breeding season is from February to May, though

in the South it also breeds in December.

Four to six eggs are laid in the nest hole which is usually executed by the birds themselves, being a tunnel and nest-chamber like those of a Woodpecker in the branch of a tree, usually at some height from the ground. Occasionally a natural hole in a tree is utilised. In either case no nest is built, the eggs lying on chips and debris in the bottom of the chamber.

The egg is a broad oval, rather pointed towards the small end.

The texture is fine though without gloss. The colour is pure white,
but it loses its freshness as incubation progresses.

The egg measures about 1-0 by 0-80 inches.

THE MOTTLED WOOD-OWL

STRIX OCELLATUM (Lesson)

Description.—Length 18 inches. Sexes alike. Top of the head and neck tawny ferraginous, the feathers typed with black containing white spots; remainder of the upper parts finely mottled with Dake, the party conceiled bases of the feathers tawny ferraginous; an irregular white and the state of the feathers tawny ferraginous; an irregular white note to book, the cuter flught-feathers being dark brown crossed with paler mottled bars, the base of the inner webs largely tawny ferraginous; tall tawny at the base, mottled black and white towards the end, the feathers crossed with pale mottled bands and black bars, the toutter feathers triped with white; face mottled and barred with black and white; a large white patch on the theory.

Iris dark brown; eyelid orange; bill black; claws dusky.

This and other forth are remarkable for the following features.

The head is large, and the eyes are discrete forwards in a facility discrete forwards in a facility of the composed of for entire forms of the following the composition and for double-textured features. It is about and hooked, with the norths set in a cere almost consoled with features in the following features in the following features in the following features in the features in the features in the features in the feature in the f

Field Identification.—A large Owl with a typical Owl "face" but no ear-tuits. Most beautifully barred and mottled in brownish-black

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and white with tawny patches wherever the feathers are ruffled.

Ditribution.—Peculiar to India. Generally distributed throughout the country up to the base of the Himalayas except in Sind, the North-western Frontier Province and most of the Punjab. A strictly resident species. In the Himalayas it is replaced by races of the European Brown Owl (Stris aluco), a mottled grey or brown bird of similar aspect, which is found at all elevations from 4000 feet up to the limits of tree level, occurring in all the hill stations.

In Southern India and Ceylon another representative of this group is the Brown Wood-Owl (Strix indranee), a very dark brown bird, also

Habits, etc.—Very little has been recorded about the habits of the Motteld Wood-Od which lives the secluded life of its genus. It is not a bird of dense forests but is found in well-wooded country where large manglo-opes or roadside avenues of ancient trees provide it with holes to next in and cover to spend the day. In such localities it shelps away the day in some shady refuge, energing at nightfall it alongs away the day in some shady refuge, energing at nightfall and mines and must be one of the birds most beneficial to Indian agriculture. The call is said to be a lond harsh how?

The breeding season extends according to locality, for it is said to be somewhat earlier in the southern half of India than in the north, from November until April. There is little or no nest, the eggs being laid on a little dy rouch-wood, a few dry leaves or the miscellancous rubbish that collects in some large cavity in the trunk or a bough of an ancient tree or in the depression at the fork of two or more large branches. Such a site may be chosen at heights from 8 to 25 feet from the ground.

The clutch varies from one to three eggs, but two is the normal number. The egg is rather large for the size of the bird, a very round oval of fine texture and little gloss. The colour is white with often a very delicate creamy tinge.

The size is about 1.99 by 1.67 inches.

THE BROWN FISH-OWL

KETUPA ZEYLONENSIS (Gmelin)
(Plate xv, Fig. 2, opposite page 360)

Description.—Length 22 inches. Sexes alike. Upper plumage rufescent-brown with broad black shaft-streaks, the upper back and wing-coverts much mottled with brown and fulvous; there are sure buff and white spots along the shoulders; flight- and tail-feathers day

brown with paler mottled whitish-brown bands and tips; throat white; lower plumage whitish, streaked and narrowly and closely barred with wavy brownish-rufous markings.

Iris bright yellow; bill dusky greenish-horn; legs dusky yellow.

In this species there is an aigrette of long and pointed feathers over each eye; the tarsus is bare of feathers and granular, with prickly

over each eye; the tarsus is bare of feathers and granular, with prickly scales on the soles.

Field Identification.—A massive, solemn, brown bird with yellow

eyes surmounted by ear-tufus (the head recalling that of a cat); plumage grey and brown with pronounced streaks. Sleeps by day in trees and on the ground. Immediately distinguished from the Eagle-Owls by the bare tarsus.

Distribution.—This fine Owl is a widely-distributed species, ranging from Palestine on the west through India, Burna and Ceylon to China in the cast. It is divided into several races, but all Indian blords belong to the race K. z. lecthocaulti. In India it is found throughout the Continent from the foot-bills of the Himalayas on the conch, and Stoid and the North-west Frontier Province on the west. In Southern India it is found up to the summits of the bill-tanger. The typical race from Ceylon is smaller and darker. A resident

Habilt, etc.—This large Oel is always found in the vicinity of water, and its food, though including birds and anall mammals, consists very largely of fish and crabs which it catches at the edge of rivers and streams. In view of this diet its feet and class are unlike that of most other Owls. The tarsus is almost entirely free of feathers which are replaced by grammlar scales, and the obles of the feet are thickly covered with prickly scales particularly adapted binding slippertyper, while the large well-curved classes here sharp cutting edges as well as highly-slarpened points. In fire this habed foot very strongly texenables that of the Opercy, the well-shown

The Fish-Owl sleeps by day in some large heavy-foliaged tree or in the face of some rocky cliff, and with the fall of dusk wings is way to the neighbouring water, uttering a strange screaming call which resembles that of an Eagle or Norfolk Plover rather than that

of an OWI.

Another call is described as a loud dismal cry have-have-have-ha, or a deep triple note hu-who-hu.

The breeding season is from December to March, but most eggs will be found in February. This Owl nests in clefts and ledges of rocky banks or mud clifts, in holes and hollows of ancient trees or in the deserted nests of Fishing-Eagles and Vultures. These varied sites are lined with a few sticks and feathers or dry leaves and grass. The clutch consists of two eggs. These are very perfect broad ovals, close-grained and compact in texture, with a slight gloss, though the whole surface is freely pitted. The colour is white with a faint

In size they average about 2.38 by 1.88 inches.

THE ROCK EAGLE-OWL

BUBO BENGALENSIS (Franklin)

Description.—Length 22 inches. Sexes alike. Head and neckheight tausay—lift, heavily streaked with rich dark brown; above the whitish facial discedged with a blackish ruft two conspicuous." horm: "or "sigretter." of feathers deep blackish-brown edged with fulvous jumper plumage deep rich brown, mottled and spotted buff and white, most conspicuously on the sides of the wings and above the tail; flight-feathers rich deep tawny with brown bars, dusky at the tip; ratil barred buff and brown, the central pair of feathers mottled with those colours; chin and throat whitish; remainder of lower plumage buff, floradly dashed with dark blackish-brown on the breast and streaked and cross-barred with the same on the abdomen and flanks, "the markings dying away again under the tail and on the legs.

Iris orange-yellow; bill horny-black; claws dusky.

The tarsus is thickly feathered.

Field Identification.—A large solemn bird, mottled tawny-buff and blackish-brown, with conspicuous tufts above large orange eyes, which sits motionless by day amongst rocks and ravines and occasionally in trees. This bird and 'the Brown Fish-Owl are difficult to distinguish in the field when the legs are not visible. The Fish-Owl carries the ear-tufts lower and is reddish-brown in general colour while the Easle-Owl is sellowish-tawny with more baled on the beach

Distribution.—The Rock Eagle-Owl is virtually confined to India, though it is found rarely in flyrms. It is from din the Western Himalsyas and Kashmir up to about 500 feet. In the plains it occurs from the North-west Ferontier Previous and Sind across to Upper Bengal and southwards generally, though it is not found in Ceylon. A resident success.

The Long-eared (Aiio otus) and Short-eared (Aiio flammeus) Owls are medium sized species of very similar type to the Eagle-Owls. They appear as winter visitors to the plains, the former confined to North-western India. The latter is widely distributed and is usually flushed from ground cover, often in parties. Habitt, etc.—This is the commonest of the large. Oals of India, being very abundant in Northern and Central Irota. It lines by preference in hollows and clefts of reely clith. The things of the introduction of the preference in hollows and clefts of reely clith. In horselscond on with and when these are wanting takes refuge in clumps of trees. Though mainly nocturnal, it sometimes moves by day and long after sauries may be seen perched on the summit of a rocky scree, looming large in view against the cleames of the new-born sky. It feeds on frees,



Fig. 55-Rock Eagle-Owl (4 nat. size)

lizards, snakes, mammals, birds and insects. The call is a loud durgoon or to-tchoot, solemn and deep in tone, but when disturbed by day it will sit on a rock bowing and squawking at the intruder, and hissing and snapping with its bill.

The breeding season extends from December to May, but most nests will be found from February to April.

No nest is made, the eggs merely lying in a hollow scraped in the soil, generally in a ledge or recess of a cliff or bank-face,

but some eggs are laid on the ground at the foot of a tree or under a bush.

The normal clutch consists of four eggs, but two or three are some-

times laid.

The egg is a very perfect broad oval, white with a faint creamy tinge. The texture is close and fine, with a distinct gloss.

The egg measures about 2.10 by 1.73 inches.

THE DUSKY EAGLE-OWL

Buno coromandus (Latham)

Description.—Length 22 inches. Sexes alike. The whole plumage including aigretizes on the head greyish-brown with dark ahaft-stress the feathers finely mottled and vermiculated with whitish especially on the lower surface; a few bolf and white spots about the shoulders; of flight- and tail-feathers brown with pale mottled cross-bands and tips. It is deep yellow; bill homewhitsh; classes black.

iris deep yenow, bill normy-v

The tarsus is thickly feathered

Field Identification.—Very similar in the field to the Rock Horned-Owl, but it is a grey, not a tawny bird, and it is always found sitting in trees; the eyes are paler.

Distribution.—This fine Owl is found throughout the greater part of the Indian Peninsula extending from the Indus Valley right away to Eastern Bengal, and south to the Carnatic and Mysore, though it is absent from various areas such as the Bombay Decarb, the Western Ghats and the Malbar coast. It is strictly resident.

Habits, etc.—This O'el avoids the most heavily afforested tracts and lives in woods and groves in open country in well-watered areas. It is particularly partial to the avenues of large trees which grow along the great canal systems of Northern India. By day it selegs in the trees, sitting in a thickly foliaged bough or close up to the trunk, and wakes to activity about dusk, though it begins to call an hour or two before sumer. The call-note is very character of the call of the control of the con

The food consists chiefly of Jungle and House Crows which often roost in great numbers in the groves that it inhabits; it also takes various small mammals, birds, lizards and frogs, and also robs nests of their cers and young.

It breeds very early in the year, from December to March. The nest is a large rough cup of sticks placed in a fork of a large tree some go or a feet from the ground. It is generally lined with green leaves or dry grass, and is sometime a large structure ideal is and used year after year. While the fernale is sitting the rule steps nearly in an adjacent tree, the spot being marked by the results of the structure of the structure

The normal clutch consists of two eggs, but one, three or four eggs are also rarely found. Incubation commences with the laying

the first egg.

The egg is typically a broad oval, but variations in shape and size are common; the texture is rather coarse with more or less gloss; the colour is dead white with a rather creamy tinge.

In size the eggs average about 2.33 by 1.39 inches.

THE COLLARED SCOPS-OWI

OTUS BAKKAMŒNA Pen

Description—Length, to inches. Sexus allike. Facal dise light brown, faintly banded darker; broad atreaks over the syes merging into aigertes buffy-white, mottled with blackish; ruff buffy-white with dark brown edges; uper planges buff, doesly-vermiculated, streaked and specified with blackish except for a conspicuously patie collar round the back of the neck and a buff and black-speeted band down the shoulders; flight-feathers brown with pater mottled bands and tips; till brown with pale cross-bands, the feet-should be and mottled; lower plumage buffy-white, irregar-bands, the feet-sharted, and except towards the ethis, tarsus and tull much stippled with fine except towards the chin, tarsus and tull much stippled with fine

Iris brown; bill greenish- or yellowish-horny; feet greenish-

The tarsus is thickly feathered.

Field Identification.—A small Owl with conspicuous ear-tufts and dark eyes, the general effect of the plumage being buff, rather richly marked with dark brown, especially about the head. Presence seldom detected until the call is heard.

Distribution.—This handsome little Owl is found throughout the Oriental region generally, from Muscat on the west to Japan on the east. It is divided into a number of raxes, of which the following occur in our area as resident birds. They differ merely in details of colour, tint and size, and in the amount of feathering on the uses. The typical race is found in Ceplon and Southern Isodia up to Madrus and the Southern Konkan. O. b. marathe is found in the Central Provinces to Sambalpur and Manblum in Southern Bengal. O. b. gangetiens is found in the United Provinces east to Allahabad and at Mount Aboo. O. b. deserticolor is the pale bird of Sind and Baluchistan. In the Lower Himshayan ranges up to 6000 feet there are two forms: O. b. plaumiper is found from Hazara to Carlwal, while the bird of Nepal. Skilkim and Burma is known as O. b. lettia.

The Scops-Owls are a large and difficult group; this species may be distinguished from the others by the wing formula; the first

primary is shorter than the eighth, while the second primary is in length between the sixth and seventh or the seventh and eighth.

Habiti, etc. — The Collared Scops-Owl is thoroughly nocturnal, only awaking to activity just as the dusk has almost merged into night; at this hour its low mournful call solout usered slowly and sedately at long intervals may be thus; it may be heard again and again until dawn brings the first flush of light. That is all that is generally known of this Owl unless by chance it is noticed fast alseep in a tree in the daytime; though this is seldom, as it hides itself carefully



Fig. 56—Collared Scops-Owl († nat. size)

The food consists chiefly of insects.

Two other very nocturnal species are only known to most people by their calls in the Himalayan hills status. A very regular and rhythmic touck-chug, which goes on end-

leasly like the working of a pump-engine, is the call of the Indian Scops-Owl (Our smin). A plaintive double whistle with a slight interval between the two notes phen-phen, with the tone of a hammer on an arvil, is uttered by the Himalayan Scops-Owl (Our spikocphalm). A single clear whistle, often repeated—also a familiar night sound of the hill stations—indicates the presence of the Pygmy Owlett (Glausichin Model), which is little larger than a Sparrow.

The breeding season extends from January until April. The eggs are laid in a natural hole in a tree which is slightly lined with leaves and grass. A pair once deposited their eggs in a large nest-box placed in a tree in my garden. The clutch varies from two to five eggs. These are almost spherical in shape, pure white, fine in texture and first valeur.

They measure about 1.25 by 1.05 inches.



and the Southern Kooken. O. 8. marathe is found in the Central Protection to Southelper and Mandblum in Southern Bengal. O. 8. programme in Sound in the United Provinces east to Allabolation and at Mount Alone. O. 8. deserticiole is the pulle bird of Sind and Radiotisms. In the Lower Himshayan ranges up to 600 feet there are not Seems. O. 8. plausipe is found from Hazara to Carboni, which the Nord Nord William and Burma is known as O. 8. beria.

The Saspe-Dade are a large and difficult group; this species be descriptioned from the others by the wing formula; the cost of the cost of

rimary is shorter than the eighth, while the

Haddas, etc.— The Collared Scope-Cos Methodologishy to contrain only weaking to account just on the dush has almost merged into comjust on the dush has almost merged into comlete at this hour its few mourtaful call of what can show the contrained of the contrained of the dusty of seed sold of the contrained of the beautiful the contrained of the contrained of the contrained of the contrained of the property known of this Ode once to the sold of the contrained of the seed of the contrained of the contrained of the sold of the contrained of the seed of seed s



Pro. 35-Collan Scope-Owl

The food consists chiefly of insects.

Two other very nocturnal species known to most people by these male the stations. A very weak the third process of the chief.

leady like the working of a pump-negine, is the call of a Soop-Owl (flow uses). A plaintive double whistle with interval between the two notes phen-phen, with the interval between on an anvil, is uttered by the Himshayan Soop-Owl (Josephen user) and the state of the properties of the public phalan). A single clear whitele, often repeated—also varieties under sound of the hill stations—indicates the presence of the case Outset (Clauseline Mendel), which is little larger than Sources.

eggs are laid in a natural hole in a tree which is slightly less wellsages are laid in a natural hole in a tree which is slightly less wellleaves and grass. A pair once deposited their eggs in a language box placed in a tree in my garden. The clutch varies from the five eggs. These are almost spherical in shape, pure white, these texture and fairly slows.

They measure about 1:25 by 1:05 inches



Green Parrakeet.
 Blue-Jay.
 White-breasted Kingfisher.
 Golden-backed Woodpecker.
 Common Kingfisher.
 (All about \$ nat. size.)

Sacre A. 336

THE SPOTTED OWLET

ATHENE BRAMA (Temminck)

(Plate xvi, Fig. 4, opposite page 384)

Description—Length 8 inches Sexe allie. Forehead and a rareka show the sey whithin', upper parts, wings and tail gregishor earthy-brown, the top of the head with small white spots, the reast of the upper plumage more or less boldly spotted and in places almost barred with white; an indistinct whitish half-coller on the hind neck; the quills with pale booker cross-bars; the tall with four to six white cross-bars; chin, throat and sides of the neck white; a broad brown band, somewhat broken in the centre, across the throat; lower plumage white with brown bands and spots on the feathers, dwing away towards the tail.

Iris pale golden-yellow; bill and feet greenish-yellow.

The facial disc and ruff are very indistinct in this Owl.

Field Identification.—One of the most familiar birds of the plains. A small spotted brown and white Owl with bright yellow eyes, which is very wide awake by day and makes most extraordinary noises about dusk; found everywhere, especially in gardens about houses, in twos

The eeric long-drawn shrick also heard round houses is the cry of the Barn Owl (Tyto alba), unmistakable with its queer pinched

face and figure and buffy yellow and white plumage.

Distribution.—Throughout the Peninsula of India from the Northwest Frontier Province, Baluchistan and Sind to Assam and Cachey, and from the foot-hills of the Himalaysa (up to 1900 feet) to Cape Comorin. It also occurs in parts of Burma and Siam. It is divided into races, distinguished by slight differences in coloration. The typical race occurs in Southern India up to about Benbay; while north of that all Indian birds, including those of Baluchistan, belong to the

race A. b. indica. A sixtley resident species.

Habita, etc.— In the Spotted Ordet we have the most common and familiar wide of India, known to everyone who spends even the abortest size quality at lone in rocks and ruins, in trees and houses. It is perticularly partial to gardens. This quantitude bird is, of the perticularly partial to gardens. This quantitude bird is, of both the most varied assortment of squesks and squess from the bodie in which it has spent the day, and signalises it energeted the most varied assortment of squesks and squesks and squest in the squesk and squesks and the squesks and squesks and

going far at a stretch. It hovers occasionally some 15 or 20 feet above the ground, much after the fashion of a Kestret, though not so greatfully and skiffully. About houses and streets it perches often in the glare of lamps to profit by the insects attracted to them, and where people dine out in their gardens it hunts round the table with a perfect diskain for their presence.

But though truly nocturnal, it is less sleepy by day and intolerant of the light than most Owls. It is sits out in the smulght near the entrance to its hole, and is then wide awake enough, promptly bowing and nodding and galring if looked at, finally taking to wing or popping back into its hole to avoid the annoyance; occasionally it calls and chatters by day, but not very often. There of tour othen live together. The food consists almost entirely of insects, and the next holes and resting places will be found litered with pellets containing the indicentral places will be found litered with pellets containing the indicentral places will be found litered with pellets containing the indihowever, occasionally taken. Small mammals and birds and litards are,

The breading season is from February to May, most nests being found in March and April. No very definite nest is made, but the eggs general prest on a few feathers, dry grass and other rubbish which is usually aready present in the hole, though perhaps sometimes gathered by the Owlet itself. The favourite nesting site is a natural hole in a tree, but holes in buildings and clefts in rocks are often used.

The number of eggs varies from three to six. They are pure white in colour, moderately broad ovals of a close uniform satiny texture.

They average in size about 1.25 by 1.04 inches.

THE JUNGLE OWLET

GLAUCIDIUM RADIATUM (Tickell)

Description—Length 8 inches. Sexes alike. Whole upper plumage dark blackish-brown finely barred with plan frolan on the head and neck and with white on the remainder, some white and rufous blotches on the wing-cover;; wing-quills blackish-brown barred with pale chestunt, the bars becoming more distinct towards the body; tail soovy blackish with narrow white cross-bars; lower-plumage banded blackish-brown and white or pale rufous, the dark bands gradually disappearing towards the rail and on the thighs; clinic, alie below the checks, a large patch on the upper breast and the centre of the addomen pure white.

Iris yellow; bill greenish-horny, cere greenish; feet dirty greenishyellow, tips of claws blackish. The facial disc and ruff are indistinct. Legs feathered and toes covered with coarse hairs.

Field Identification.—A small dark-looking Owl, finely barred with blackish-brown, white and chestnut, which is partly diurnal in its habits. Lives in trees and has an easily recognisable call.

Distribution.—A sedentary species confined to India and Ceylon.
The typical race is fairly generally distributed, except in the Eastern
Ghats, throughout India from Saharunpur, Gwalior and Mount Aboo
to North Cachar and Hylakandy in Assam. In the Himalayas it is



Fro. 57-Jungle Owlet (1 nat. size)

found only in the outer and warmer valleys. In Peninsular India it is found both in the plains and in the hills up to about 5000 feet. It is confined to the dry zone in Ceylon.

This species must not be confused with the very similar Large Barred Owlet (Glancikiam cuculoidas) which is very common throughout the Lower Humshayan ranges where its rising croscends of squawks, supplemented by a long quavering whistle in the breeding season, is a familiar sound by day.

Habits, etc.—The Jungle Owlet is usually confined to the more jungly and forest-clad tracts of both the plains and the lower hills

though in the cultivated plains of the United Provinces a pair or two may be found in almost every mango tope.

As a rule, it is an inverterial skulker, remaining in its hole in spite of any noise. When disturbed it settles on a branch and remains perfectly still stirting bolt upright and staring intently at the intruder until it senses that it is discovered, instantly taking wing to a fresh place of concealment, and if pursued it repeats the performance. Sitting thus it bolts exactly like the stump of a dead bough. It sees well by day and Vidal records how one dashed out of a tree to capture a Phyllosopule he das shot which was futuring slowly to the ground.

in the full blaze of the sun.

The Jungle Owlet makes its appearance in the evening a little later than the Spotted Owlet and retires as a rule a little earlier in the morning, its principal feeding hours being apparently the hour after sunrise and the hour before sunset. If undatatived the pairs sit together and sun themselves before retiring to their hole, sometimes remaining thus up till middow. Like the Spotted Owlet it often

perches on telegraph-wires.

This Owler calls both by day and night. The call is peculiar but rather pleasing, something of a chirp in several different the discordant noise of the spotted offler. It is described as too-root-root-root offlerent to the control of the control o

The flight is both rapid and strong, the wings being often partially closed. It kills and devours all kinds of small birds as well as locusts, lizards, crickets, and and even butterflies.

The breeding season is from March till June.

No nest is constructed, but the eggs are laid in holes in small trees, usually some 10 or 20 feet from the ground.

The clutch consists of three or four eggs. They are normally very broad ovals, smooth and satiny to the touch but with scarcely any gloss. The colour is pure white.

The egg measures about 1.25 by 1.05 inches.

THE KING VULTURE

SARCOGYPS CALVUS (Scopoli)

Description.—Length 32 inches. Sexes alike. Glossy black, brownish on the shoulders and lower back and rump; the crop is dark brown almost surrounded with white down; a large white and downy patch on each flank by the thighs.

Iris reddish-brown or yellow; bill dark brown; cere dull red; legs dull red. The head and neck are bare, deep beefsteak-red in colour with a flat pendent wattle behind each ear; there are conspicuous bare red patches on each side of the crop and in front of each thich.

Field Identification.—Black plurnage and the bare red head and neck wattles are distinctive both on the ground and in flight; in flight also the white thigh-patches are compicuous at all distances, and place the identification beyond all doubt; the wings appear eather pointed ein flight, and a whitish line generally seems to run

Distribution.—This fine Vulture is found throughout India and Burma, though not in Ceylon, extending on the south-cast tind the Malay Peninsula, Siam and Cochin - China. In the Outer Himalayas it breeds up to a height of 5800 feet and ranges in search of food up to about 8000 feet. It is a strictly resident species.

Habiti, etc.—Although generally distributed and common through out India, this species is generally the special of the special



Fig. 58—King Vultur

frequently known as the Biacc. or Pondicherry Vulture. It is not partial to very heavy forest or pure desert, and is most common in open cultivated plains where it rests upon the trees; it never settles on cliffs. In flight the wings are held well above the line of the back.

The breeding season lasts from the latte end of January until the middle of April, but most eap repubbly laid in March. The most in a large that and it is probably required and offer several degree of the property of the p

under no circumstances does it ever breed on rocks or buildings. Occasionally it utilises the old nests of Eagles.

Only a solitary egg is laid. The normal shape is a round oval; the shell is very strong with a moderately fine texture, usually without gloss. When freshly laid the colour is a nearly unsullied pale greenishwhite, but as incubation advances the shell becomes discoloured.

In size the eggs average about 3.35 by 2.50 inches.

THE HIMALAYAN GRIFFON

GYPS HIMALAYENSIS Hume

Description.—Length, a feet. Sexes alike. Head and neck naked as awe for some yellowish-white hair-like feathers on the head and a yellowish-white the interior on the head and yellowish-white down on the neck; a ruff of loose-textured pointed feathers mouth fencek whitish and pale brown; back whitiy-brown, unaeven); coloured, with traces of pale shaft-stripes; lower back whitish merging into boff; wings dark brown with pale tips to the coverts, the quills and tail-feathers blackish-brown; lower plumage light buff-brown, darker on the crop, with broad whitish shaft-streaks.

Iris brownish-yellow; bill pale horny-green; cere pale brown; legs dingy greenish-white.

Build squat and heavy, accentuated by the bare head and neck with the loose ruff. The beak is deep and laterally compressed with the upper mandible strongly hooked.

Field Identification.—The huge pale-coloured Vulture found commonly throughout the Himalayas. Seen from below it is pale khaki with the hinder margins of the open wings and the tail black, and it files high in the sky with the appearance of an aerophaking the colour, down-covered head and neck and white neck ruff are distinctive when the bird is stirting still.

Distribution.—A resident mountain species found throughout the whole length of the Himalayas from Kabul to Bhutan; also in the Pamirs, Turkestan and Tibet.

The exact relationship between this species and the Griffon Vulture (*Sypt Juleus*) is not very clear nor are they ordinarily separable in the field. The Griffon is apparently common over the greater part of North-western India, occurring in diminishing numbers southwards to the Decean and eastwards to Assam.

The smaller Vulture of similar coloration but remarkable for its dark head and neck bare of down is the Long-billed Vulture (Gyps indicus). This is common throughout India generally except in the alluvial plains of the North-west.

Habits, etc.-This Vulture is familiar to all who have visited the

hill stations of the Himalayas, as it is the great khaki-coloured bird which may be seen at all hours wheeling and soaring in the sky often at immense heights, or flying fairly low over the hill-side, travelling straight and fast with a tearing noise. The wings are held stiff and straight in a line with the back and the whole bird irresistibly recalls the passage of an aeroplane. Seen at a distance, the wings appear very broad and square ended, and at short ranges it can be seen that the pressure of the air causes the feathers at the ends of the wings to splay out and turn upwards like the fingers of a hand. Like other Vultures, this species has its fixed resting places, which are usually on the rocky face of some magnificent cliff or mountain spur; here the birds congregate to digest a recent meal, sitting motionless, hunched up in the traditional Vulture attitude, or squatting and sunning on the been used for hundreds of years, and the white stains about them are often visible two or three miles away. Immediately after a heavy gorge at a carcass the Griffons congregate on trees in the immediate vicinity until digestion has started and they feel able to face the flight to the resting place. The food consists entirely of carrion from carcasses and the bird never kills a prey for itself.

The breeding season is from December to March. The birst next in small colonies, seldom of more than four to six pairs, on the next part of precipies and crags. Sometimes the solitary egg sees on the bare ledge, at other times it is supported merely by a few twigs and roots or a little dry grass, but generally there is a huge next of sticks.

The egg is somewhat variable in shape, but is typically a rather long and pointed oval. The texture is rather coarse driven in practically no gloss. In colour it is greenish- or greyish-white; some eggs are unmarked, but the majority are more or less blotched and streaked with various shades of brown, some quite heavily.

In size they average about 3.75 by 2.75 inches.

THE WHITE-BACKED VULTURE

PSEUDOGYPS BENGALENSIS (Gmelin)

Description.—Length 35 inches. Sexes allie. Sparse brownish hairs cover the bare head and neck and at the back of the neck white downy turfs introduces a rule of abort pure white down; upper plumage blackish-brown with a large white pack and the base of the tail; proposed to the proposed proposed to the proposed prop

Iris brown; skin of the head and neck dusky-plumbeous; bill dark plumbeous, whitish along the top, the cere polished horny-black; legs blackish.

Field Identification.—A huge humped-up square-looking bird which broods on the trees with the naked head and neck shrunk into the shoulders. Dark leaden colour with conspicuous white rump-patch prevent adults being confused with any other Vulture.



Frg. 59-White-backed Vulture (§ nat. size)

In flight if the white rump-patch is invisible the rather pointed wings with their white lining and the white sides combined with the general blackish colour render identification easy.

Dittribution.—Found throughout India and Durma (but not Ccylon) to the Malay Peninaula and Annam. It is not found in Baluchistan, but is otherwise very generally appead throughout our area, working even up to 8000 feet in the Western Himalayas, where, however, it does not breed above 3600 feet. It is a resident species, but wanders a good deal according to food-supply, and our campaigns on the North-west Province usually lead to a temporary

extension of its distribution in areas where it is not normally found. This is the commonest of all the Vultures of India, and must be familiar to those who have visited the Towers of Silence in Bombay.

Habitz—The White-backed Vulture breeds in colonies in large trees on the outsiders of populous towns, near wileges, and in the avenues of huge trees that line reads or canals. Here they settle to the work of preparing the nests often as early as September and still be be found at them until well into March; but the majority of eggs will be found in November. December and January. In addition to these colonies there are favourite roosting and resting sites where the birds may be found all the year round though their numbers sensibly diminish in the nesting season. When not stiting sluggishly at either nest-colony or rooting site, the White-backed Vulture spends its life on the wing, usually at an immense height from the ground, storing in wide circles with almost motionals wings held level with the body or slightly backwards; when travelling to fresh ground it files with a direct but somewhat bloorured flight with regularly beating wings.

For years scientific controversy raged over the method by which Vultures found their food, and there were two schools of thought that pressed respectively the claims of sight or smell. The explanation is so simple that it is difficult to realise that there was ever any doubt

An animal dise somewhere, whether in the open or under cover; if it has not hen watched before duth by the cross and parish dogs, it is soon found by one or other of them; a single crow or a single dog pulling at a crease is immediately noticed by othern of the tribs and a number collect; the carcass is fresh, the skin unbroken the first stages of the frest there is histe, which wheel round lade that a considerable that the stage of the frest there is histe, which wheel round lade; the stage of the stage of

allows them to wing a heavy way to the resting place; and there they sit and meditate until returning hunger again sends them on patrol,

This species never nests upon rocks or buildings, but invariably on trees. The nest is a large irregular structure of sticks, either wedged in the fork of a tree or right on top of it; it is repaired and reoccupied year after year until it often attains great dimensions A slight hollow on the top is lined with green leaves to receive the single egg. While pairing these birds indulge in a loud roaring noise They pair on the nest.

The eggs are fairly regular ovals in shape, the shell very thick and strong, and generally without gloss. The majority are grevishor greenish-white in colour, unmarked, but some eggs are slightly speckled, spotted and blotched with pale reddish-brown,

They average about 3.25 by 2.40 inches in size.

THE NEOPHRON

NEOPHRON PERCNOPTERUS (Linnæus)

Description .- Length 24 inches. Sexes alike. The whole plumage is white except the flight-feathers which are black and brown.

Iris dark brown; bill horny, cere yellow; legs fleshy-white.

The head and upper neck are naked with the skin deep yellow; the bill is slender and lengthened, straight at the base and deeply hooked at the end; the neck is surrounded by a ruff of hackle-like feathers; wings long and pointed; tail wedge-shaped.

Field Identification .- Exceedingly abundant about the haunts of man. A large white bird with dark wing-quills and a bare bright yellow head, accompanied by dark chocolate-brown birds which are the immature of the species. The bird might easily be mistaken for a very large hen, except for something peculiarly repulsive about its

Distribution.-The Neophron or Egyptian Vulture has a wide range in Southern Europe, in Africa and in Asia. The typical or Western race extends to the North-western corner of India, being found in Sind, Baluchistan, North-west Frontier Province, Upper Punjab, and the Western Himalayas. In the remainder of India it is replaced by N. p. ginginianus, which is a rather smaller bird with a yellow bill, the typical race having the bill dark brownishhorn with a dark tip. Intermediate birds are found about Delhi. It is a resident species, but there are indications of slight local migration.

Habits, etc.-This Vulture is only to a slight extent social, and is usually found singly or in pairs, though a number may often collect in the neighbourhood of food. It haunts towns and villages, and while

ready to eat any form of garbage or carrion appears mainly to live on human excrement; hence the detestation in which this species is commonly held by all classes. It has no fear of man, and perches on buildings and trees in the most crowded bazaars, or stalks sedately about open spaces, gravevards and camping grounds, looking in gait and appearance much like a large, disreputable old hen; hence the name of "Pharaoh's Chicken," which is often applied to the Western race in Egypt.

The breeding season lasts from the end of February to the end of May, but most eggs will be found in March and April. The nest is placed on rocky precipices, earthy cliffs, buildings and trees, often



Fig. 60-Neophron († nat. size)

The nests are the most filthy, disreputable structures, a foundation of sticks, lined with old rags, wool, earth, and anything else soft that comes to hand, the dirtier the better apparently. The eggs are laid in a shallow hollow on top of the mass. One to three eggs are laid, but the usual clutch consists of two.

The eggs are variable in shape, size and colour, and are often very handsome; the normal shape is a rather broad oval, somewhat compressed towards one end; the texture is coarse and generally rather chalky, but in some specimens there is a fine surface glaze. The colour is dirty white overlaid with a wash of varying shades of colour visible. Other eggs are spotted and blotched with purplish-red and ashy shell-marks.

In size they average 2.6 by 1-98 inches.

adult

THE LAMMERGEIER

Description.-Length 4 feet. Sexes alike. A marked patch from above the eye to and including the stiff bristles over the nostrils and a beard of bristles under the chin black; remainder of head and throat white speckled with black; neck and lower plumage white, tinged often very richly with bright ferruginous, and usually with an imperfect black gorget across the breast; upper back and lesser wing-coverts black with narrow white shaft-stripes; the remainder of the upper plumage, wings and tail deep silvery-grey, the shafts of the feathers white and the edges blackish

Iris pale orange, the sclerotic membrane blood-red; bill horny.

darker at tip; legs plumbeous-grey.

The bill is high, compressed, and much hooked at the end; wings long and pointed, with an expanse of 8 to 10 feet; tail long, pointed and graduated.

Field Identification .- Almost always seen in flight, a huge bird with long pointed wings and wedge-shaped tail; this last feature is distinctive from every large bird in India except the Neophron. The beard is distinct up to some distance and shows black against the pale head and bright rufous neck and breast of the adult; upper plumage silvery and black. Immature birds, however, are dull blackish all over, but can be identified by the same shape and beard as in the

Distribution.—The Lämmergeier or Bearded Vulture is widely Asia, being divided into several races. It is a common bird along the Himalayas and tributary ranges down the North-western border of India, and hirds from this area, although sometimes considered identical with European birds, are described as forming a separate race G. h. hemachalanus. A resident species.

Habits, etc.-Like other species that have fired the imagination of mankind from the earliest days of his civilisation, the Lammergeier has several well-known names in different languages. Lammergeier or the Lamb-Eagle is a relic of the days before this grand bird had tion combined to credit the bird with all manner of depredations amongst sheep, goats and chamois, and even children. Another observation, is found in several languages. For the Lammergeier prefers, above all things, to feed on bones, swallowing the smaller

whole and carrying the larger high up into the air and dropping them to shatter in pieces on the rocks below, where at its leisure it collects and devours the fragments. From this habit, applied also to tortoises in the Levant, is due the legend of the death of Æschylus, who is said to have been killed by the dropping of a tortoise on his head.

The bird is purely a mountain species, and it spends its days beating along the hill-sides, following the major contours or soaring high over the ravines; living things it seldom kills, but it descends to offal of every description, picking trifles on foot even from a rubbish dump at a hill station. Carcasses it does not dispute with the Vultures. It waits till they have finished and then descends to the feast of its desires, the blood-stained bones that lie drying in the sun.

In flight the wings are held in a line with the body, but from their shape and the pressure of the air they slope downwards and up again at the tips, so that in horizontal section the bird has the shape of an unstrung bow; like this it travels and soars indefinitely without flapping, merely banking slightly from side to side, though now and again it rings the changes on majestic flapping and gliding. By way of courtship it indulges with its mate in aerial gymnastics which reveal its perfect mastery of the science of flight. Normally it is silent, but when courting it indulges in loud squealing.

The breeding season commences in November and lasts until

March, and most eggs will be found about January.

The nest is placed in some almost inaccessible situation in the face of a cliff, usually on a ledge under a projecting rock. It is a huge, shapeless heap of sticks strewn about and mixed with rags, large bones,

The clutch consists of two or three eggs. These are typically rather broad ovals, pointed towards the smaller end. The texture is rather coarse and glossless, the colour of the shell appearing pale

dingy yellow when held up against the light.

The colour is rather variable, from pale uniform salmon-buff to markings of the same tint; or the egg may be dull white with spots, streaks, and blotches of pale washed-out reddish-brown and

In size the egg measures about 3:25 by 2:65 inches.

THE TAWNY EAGLE

AQUILA RAPAX (Temminck)
(Plate xv, Fig. 1, opposite page 360)

Description.—Length: Male 2g inches, female 28 inches. Sexes ailac. The coloration is very variable, but is generally uniform ailac. The coloration is very variable, but is generally uniform brown, varying from a dirty buffish-brown to deep rich umber-brown; the quills are dark blackish-brown, mottle and barred with whitish about the base, and the tall is dark greyish-brown with more or less distinct cross-bands. In now specimens there is a very distinct dark mask on the front of the head and face, and parts of the plumage are often souted with light brown.

Iris hazel-brown; bill pale bluish-grey, blackish at tip; cere

dull yellow; feet yellow, claws black.

The nostril is ear-shaped; bill strong, curved and sharply hooked; top of the head very flat; legs feathered down to the toes. The

plumage is coarse in texture.

Field Identification.—A large brown or blackish-brown bird of rather fierce appearance with its flat head, sharply-hooked beak, and feathered legs armed with sharp claws, which sits heavily on the tops of trees or sours in great crices above the Kites, from which it is easily distinguished by the rounded tail. There are, however, several other common species of Eagle, and it requires some knowledge and and practice to distinguish them from it. Of these the most easily recognisable is the very large Stepe-Eagle (Aquila inplantari), which in flight exhibits two pale wing-bars. A winter visitor to India as far south as Social and Raipur.

A very black-looking Eagle, seen above tree-level in Baluchistan and the Himalayas, is usually the Golden Eagle (Aquila chrysaëtus). A loneish tail and often light patches in the wing and tail-quills assist

recognition

Distribution.—A. rapax cindinana, the common Eagle of India, is the Orientat nece of A. rapax, which is found throughout the greater part of Africa. It is found throughout most of India from Baluchistan and the North-west Frontier Province to Lower Bengal and Upper Burna; but it is wanting on the Malabar coast and in Ceylon. In the Himalayas it occurs and breeds up to about 4000 feet. It is a resident section.

Habits, etc.—This Eagle avoids heavy forest and the damper portions of the country-side, being particularly a bird of those dry sandy plains with a moderate amount of tree growth which are such a feature of Northern India. It divides its time between soaring high in the air like the Vultures, and with them keeping watch for excuses, or sitting lumpily on the summit of a tall tree watching the aurrounding country-side. Although in being partial to carrior it offends against the traditional idea of an Eagle, it is a fine lordlylooking bird and has plenty of courage, taking hare and large birds, and in particular chasing and robbing falcons and hawks of their booty. This habit causes it to be a great unisance to the falconer as it chases trained falcons mistaking their jesses for prey. At other times no quarry is too small for it. I have seen it may be a summitted to the state of the devoured.

Eggs are laid from the middle of November until June, but the

majority will be found in January.

The nest is a large flat structure of sticks and thorny twigs, lined as a rule with straw and coarse grass and often with green leaves. It is built not in a fork but on the extreme tops of trees so that the Eagle may settle in the nest without brushing its wings against the branches. The favourite tree is the dense thorny kilar or babool tree.

The clutch consists of one to three eggs.

The egg is normally a somewhat broad oval, slightly pointed at

one end; the texture of the shell is hard and fine, usually with a slight gloss. The ground-colour is dull greyish-white; many eggs are unmarked; others are marked, though generally sparingly, with streaks, spots and blotches of brown, red and purple of varying tints.

The eggs average about 2.60 by 2.10 inches.

THE CRESTED HAWK-EAGLE

Spizaëtus cirrhatus (Gmelin)

Description.—Length: Male 26 inches, female 29 inches. Sexes alike. There are two main colour phases, of which the dark phase

usually considered adult and the pale phase immature.

Dark phase; Crest black lightly tipped with white; top and sides of the head and neck brown streaked with blackish-brown; upper plumage umber-brown, the depth of colour in individual feathers variable; wine-guills brown above, whitish below, barred and tipped with black, inner webs white towards the base; tall brown above, whitish bloow with four or five broad umber-brown cross-base and the tips of the feathers paler; lower plumage white heavily a patch under the tail brown, partly barred with white; feathers of the taxus mettled rigous brown and white.

Pale phase: Crest as above; top and sides of the head and neck

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white overhid with creamy brown, many of the feathers with dark brown shaft-streaks; remainder of upper plumage dark umber-browns some feathers paler and many broadly edged with white; wing-quills and tail as above but dark bands are narrower and more in number. The whole lower plumage white, some of the feathers with dark



Fig. 61-Crested Hawk-Eagle (& nat. size)

brown shafts and rufous-brown spots, the thighs and feathers under the tail heavily mottled with brownish-rufous.

Iris leaden-grey, pale straw-colour or golden yellow; bill plumbeous-black, cere plumbeous in dark phase, yellow in pale phase; feet yellow, claws black.

Nostril ear-shaped; bill strong, curved and sharply hooked; a tuft of long feathers springing from the back of the crown; legs feathered to the base of the toes.

Field Identification.—A lightly-built, slender Eagle with a proportionately long narrow tail, upper parts dark brown; lower parts either pure white becoming rufuous towards the tail, or white heavily streaked with blackish-brown. Underside of the wings in flight is white barred and apported with blackish-brown. A curious taff of long black feathers springs from the crown. Found amongst trees and rather noise.

Dittribution.—The typical race is very generally distributed in India south of the Indo-Gangetic plain and a smaller race, S. c. explanenti, occurs in Ceylon. A rather paler race, S. c. limantius, with little or no crest, which is also found in a melanistic phase practically black throughout, is found in the sub-Himalayan teris from Garlwal to Eastern Bengal, Assam and still farther eastwards. The very similar Hodgon's Hawk-Pagle (Sphatum inpleunis) of the Himalayas and Western Ghats and Ceylon has the lower parts much more definitely barred. The correct classification and distribution

The currons crest of these Hawk-Eagles, whilst very distinctive, may lead to confusion with the Crested Honey-Buzzard (Pemin philorhymbus) found throughout India and the rarer and more local Crested Hawks of the genus Baza. None of these, however, have the legs feathered more than half-way down the tansus. The Honey-Buzzard, moreover, has very distinctive scale-like feathering on the face, whilst the Braza have the lower parts transversely banded and zer much smaller.

Another very courageous bird of similar size and appearance is Bonelli's Eagle (Hieraëtus fasciatus) which is found sparingly throughout India. It has, however, no crest.

Habiti, etc.—The Created Hawk-Eagle is a bird of forests and also of well-timbered country in the neighbourhood of cultivation. In habits it resembles the Hawks far more than the Eagles, and it soons far less than the true Eagles, being more often seen flying through the trees than above them. It spends much of its time string on the tops of high trees watching the surrounding ground for prey to appear. A covey of partridges or a young pass/owl has part of the partridges of the partridges of the partridges of the Hawk-Eagles of the partridges of the Hawk-Eagles of the partridges and the like. The call is a prolonged shull across and the bird is very vociferous, while the young bird in the nest is extremely noisy when it is being the

The breeding season lasts from December to April, most eggs being found in January. The nest is a large and comparatively deep structure of sticks, loosely put together with the twigs hanging down middly. It is always profusely lined with green leaves, preferably

Z

those of the mango. It is built, very high up as a rule, in the fork of a large tree and, though the favourite tree appears to be a mango,

any kind of tree may be selected.

The clitch invariably consists of a single egg. The eggs are mather variable in shape and appearance, but the majority are rather broad and regular ovals, appreciably pointed at the small end. The shell is very strong and glossless, but by no means coarse. Held up against the light it is pale green. The colour is dull greenish-white, never quite unmarked but seldom well marked. The markings vary from an aimost imperceptible stippling to a couple of dozen moderatesized spots and lines, the latter thin and inconspicuous but occasionally arabesque in character. The markings are confined to the large end and wary in colour from reddish-brown to brownish-yellow.

In size the egg measures about 2.60 to 2.0 inches.

THE CRESTED SERPENT-EAGLE

Hæmatornis cheela (Latham)

Description.—Length 38 inches. Sexes aille. A short full creat black, the basal half of the feathers white; upper plumage dark brown with a dull purplish gloss, some feathers tipped with white; the stable brown and black with the tip pale and a bread conspicuous whitish below; that bland; lower parts brown, spotted with numerous white coelli and barred finely with dark brown, there being great variation in the tints of the colors.

Iris intense yellow; bill plumbeous, blackish above and at tip; cc, conspicuous bare skin in front of the eyes, and the gape yellow; legs dingy yellow.

The bill is rather long and deeply hooked; wings short and rounded; tail rather long; legs strong, the tarsus bare of feathers.

Field Identification.—The full creat mixed with white, the peculiar purplish-brown coloration with the white ocelli beneath, the broad white bar in the tail and the barred wings are most distinctive; these points combined with the noisy whistling calls render this Eagle easier than most to identify.

Distribution.—The Crested Serpent-Eagle is widely distributed in the Oriental Region from the Western Himalayas to Southern China, and is divided into a number of well-marked races; those in India illustrate to a remarkable degree the tendency of Indian birds to decrease in size from north to south.

The typical race is found in Northern India from Hazara to Sikkim along the Outer Himalayas (which it ascends to about 7000 feet) and in the plains from Rajputana to Bengal and Assam. In Peninsular and Southern India it is replaced by the smaller II. c. melanotis in which the breast is usually unbarred and the tail-bands are grey, not white. A still smaller form, II. c. splicater, is found in Cevlon.

This Eagle is a resident species, though individuals apparently wander to some extent. In Sind and the Punjab it is very scarce. Another striking Eagle, found in open country throughout India, is the Short-toed Eagle (Circattus feros), which is noteworthy for



Fig. 62-Crested Serpent-Eagle (1 nat. size)

its ability to hover stationary in the air like a Kestrel. It is brown above and white below, the crop-region being streaked and the flanks crescent-spotted with brown. The head appears larger than in most reader.

Habits, etc.—This handsome Eagle is found in sell-wooded and well-watered country, being particularly partial on the pleasart sublimatayan valleys where mountain streams van down through the crice-fields and amongst big groves of mage trees. Its food consists chiefly of anksel, funds and froug, but insects are also taken. It is rather a noisy brief, frequently tutering on the wing a planinie whistling call of several noises, *kab-kals*, queere-queerar-queers, the first two short notes being only audible at close range, the others carrying a great distance. It is very bold, and I have ridden up within a yard or two of one which was standing on the ground holding a snake in its talons. The claws are usually dirty with mud, indicating how large a portion of the food is procured about paddy fields and iheels. In flight the wines appear very broad and rounded, and they are held sloping backwards, while the long tail is only partly spread. This Eagle generally soars over forests and well-wooded ravines in preference to barren and open ground, and it often rises to an immense height. travelling fast or soaring in great circles.

The breeding season lasts from March to May.

The nest is always placed in trees, not on the topmost branches as in the case of the Tawny Eagle, but in a fork within the branches of the tree. It is small for the size of the bird, a cun loosely made of sticks and twigs and lined with fresh leaves, fine twigs and grass roots, The single egg is a broad oval, usually rather pointed at the smaller

end: the texture is rough and glossless and the shell strong.

The ground-colour is bluish- or greenish-white, with specklings, spottings and clouds of pale purple or purplish-brown or brownishred; some eggs are very heavily marked and handsome.

In size they average about 2.75 by 2.2 inches.

THE WHITE-EYED BUZZARD

(Plate xvi, Fig. 2, opposite page 384)

Description.-Length 17 inches. Sexes alike. Upper plumage brown, sometimes with a rufescent tinge, the feathers with dark shafts; the white bases of the feathers below the back of the head show through and form a conspicuous patch; sides of the wing mottled or barred with white; quills brown above, whitish below, pure white at their bases and barred towards the tips, the tip of the wing black; tail rufous-brown above, whity-brown below, with indistinct blackish bands; chin and throat white with a dark brown stripe down the centre and a dark stripe down each side; sides of the head and neck and the breast brown, with dark shafts on the breast and white spots and bands on the lower breast and abdomen : thighs and a patch below the tail white with pale rufous bars.

Iris pale vellowish-white: cere, gape and base of bill orange,

the tip black : legs dingy orange-vellow : claws black. The bill is compressed and sharply curved : wing long and pointed : tarsus bare with short toes, the scales forming a network instead of

Field Identification.-A medium-sized brown Hawk, heavy in build with pointed black-tipped wings; easily identified by the whitish eyes and the three dark stripes on the white throat.

Distribution.—Common throughout the greater part of India from the foot-hills of the Himalayas, which it occasionally ascends to about 4000 feet down to Central India; south of this it becomes rare, though it is found throughout the Peninsula. On the west it extends to Baluchistan and the North-west Frontier Province, and to the east it is found throughout Northern Burma. While generally a

Habits, etc.-The White-eyed Buzzard avoids both hills and forest and prefers open country with low scrub and cultivation. It is a dull, sluggish creature, unusually tame for a bird of prey, and spends most of its time sitting on a telegraph post, tree or low bush, from which it makes occasional journeys to the ground to capture the grasshoppers and other insects which form its food. It also sits on the ground or on the mounds of earth that mark field boundaries and skims along low over the ground from one mound to another. Sometimes it even walks about on foot. The flight is quick and strong with rapid beats of the wings. At the commencement of the breeding

The breeding season lasts from March to May, but most eggs will be found in April. The birds are very leisurely over the preparation of their nests, which are shallow cups composed loosely of twigs and sticks without tining. They are built in the forks of trees about 20 feet from the ground; there is a tendency to prefer a thicklyfoliaged tree like a mango, often one of a clump.

The eggs vary in number from two to four, but the usual clutch is three. In shape they are broad ovals, of fine texture with a slight gloss, greyish-white or pale bluish-white in colour. They are usually unmarked, but occasional specimens will be found marked with

In size they average about 1.85 by 1.50 inches.

PALLAS' FISHING-EAGLE

HALIARTUS LEUCORYPHUS (Pallas)

Description.-Length 33 inches. Sexes alike. Forehead whitish; top of head and neck fulvous passing into dark brown on the rest of the upper plumage, wings and tail; a broad white band across the tail towards the end; sides of head and neck with the chin and throat whitish; remainder of lower plumage brown, darker on the

Iris greyish-yellow; bill dark plumbeous, cere and gape light

plumbeous; legs dull white, claws black.

Bill strong, curved and sharply hooked; top of the head very flat : feathers on neck long and pointed : upper third of the targue feathered; plumage rather coarse in texture.

Field Identification.-Northern India. A large Eagle, common along the great rivers and the larger jheels, which is easily recognised



Fig. 63-Pallas' Fishing-Eagle (4 nat. size)

by the combination of dark brown plumage with a whitish-looking head and a conspicuous white band near the end of the tail. Attracts attention by the loud call.

Distribution.-Southern Russia through Central Asia to Transbaikalia and south to the Persian Gulf, Northern India and Northern Burma. In India it is not found on the coast, but is well distributed in the alluvial Indo-Gangetic plains. Its southern limit is not accurately recorded, but it certainly occurs as far south as the Indravarti River. A resident species with no sub-species.

This species is only likely to be confused with the large Grevheaded Fishing-Eagle (Icthyophaga ichthyaëtus) which is found throughout most of Northern and Central India. In this the tail is

white except for a broad dark brown band at the end.

Habits, etc.-Pallas' Fishing-Eagle is a familiar species to all whom duty or pleasure takes about the great rivers of Northern India or the large jheels found in that alluvial plain. Sooner or later attention is attracted by the loud raucous call, which some compare to the shricking of an ungreased cart-wheel, a sound which carries great distances in the flat open plains. The author of the call may be seen perched on the top of some gigantic cotton-tree or on a low mud-cliff or else beating up and down the river with somewhat hurried flight. It soars well and attains tremendous heights in the air where it still can be identified by the white band in the tail.

The staple food of this Eagle is undoubtedly fish. It does not plunge for them like the Osprey but takes those which have ventured into the shallows or become stranded in drying pools. Its great strength allows it to capture quite large fish, the case of a thirteen-pounder taken being actually on record. When fishermen are dragging a river with nets steal any fish left unattended on the bank. Mud-turtles, frogs and reptiles are taken and any wounded duck or goose on a river soon falls a prey to Pallas' Eagle, though it is hardly fast enough to take them when uninjured. It is also a pirate, trying to rob Cormorants and Terns of their fish or Harriers and Eagles of their varied booty. Waterside carrion is not too mean for its attention, and on the Ganges it habitually feeds on human corpses. But all things considered it is a fine bird and comes much nearer to the popular conception of an Eagle than many other of the Indian species of that group. It belongs to the same genus as the Bald Eagle, which is the national

The breeding season is from the beginning of November until February, the majority of eggs being laid in December.

The nest is a huge platform of sticks, some of which are often as thick as a man's arm, with a superstructure of thinner sticks and twigs. The slight depression made to hold the eggs is lined with fine twigs and green leaves and sometimes rushes and straw. The whole structure is rough and rugged and takes a long time to build as much of the material brought to it is rejected or dropped. It may be repaired and used again from year to year, having often been borrowed in the meantime by an Owl or Lugger Falcon or even a Vulture. The nest is placed right at the top of a large tree, generally an

cotton-trees which stand as landmarks in an Indian river-bed afford

The clutch consists of two or three eggs. If the first egg is taken this species will still lay the remaining eggs of the clutch in the nest The egg is normally a broad oval in shape and the texture is rather fine and smooth. The colour is greyish-white, but the shell appears intensely dark green if held to the light.

The egg measures about 2.77 by 2.17 inches.

THE BRAHMINY KITE

HALIASTUR INDUS (Boddaert)

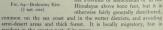
Description,-Length 19 inches. Sexes alike. Head, neck and lower parts down to the middle of the abdomen white; remainder of the plumage chestnut, paler and duller under the wings and tail: outer flight-feathers black and the tip of the tail whitish. Most of the feathers of the body plumage have a dark shaft line.

Iris brown; bill bluish horn, cere vellowish; legs greenish-vellow.

The bill is rather large and compressed and sharply hooked; tail

Field Identification. - Unmistakable : a bright chestnut bird of prey with black wing tips and a white head and breast found near water.

Distribution .- The Brahminy Kite is a bird of wide distribution, almost throughout the Indian Empire and Ceylon, and extending eastward through Siam China and the Malay Peninsula to Australia All Indian birds belong to the typical race. It is not found in the North-west Frontier Province or Baluchistan or in the Himalayas above 6000 feet, but it is



resident in the greater part of its range. Habits, etc.-The Brahminy Kite, so called from its traditional association with Vishnu, resembles the ordinary Pariah Kite in its flight and habits, but differs from it in always frequenting the neighbourhood of water. Its habits are rather variable. At certain seaports,





1. Tawny Eagle. 2. Brown Fish-Owl. (Both about 1 nat. size.)

such as Bombay, it is a savenager pure and simple, haunting the harbours and lifting refuse from the surface of the water with the class, while it is bold enough to perch on the rigging of ships. Inland it is often a shy brid, beating backworks and forwards over the rice-fields like a Harrier, eathing frogs on the ground and sweeping grassloopness off the growing rice, or hunting the jheels and the neighbourhood of aixwrs. It sometimes robs Crows and Common Kites of their food. Teresities and suntil fish are also a start. On the contract of the contr

The ordinary cry is a peculiar squealing note.

The breeding season lasts from December to April, being rather earlier in the south than in the north.

The nest is a large loose structure of sticks on which the eggs lie on a deep hollow, which may be either unlined, sparsely lined with green leaves, or fairly thickly lined with rags, wool, hair and it like substances.

It is placed in the fork of a tree or the head of a palm, generally at a considerable height from the ground. The tree chosen is almost

always in the vicinity of water.

The reggs are normally two in number, but three may occasionally, the found. They are moderately broad ovals only slightly pointed towards one end; the texture is fine and hard with a slight gloss. The ground-colour is dingy greyish-white, sometimes unmarked, at other times feelbly speckled, spotted and blotched, mostly towards the large end, with yarious shales of dull red and brown.

The eggs average about 2 by 1-65 inches.

THE COMMON PARIAH KITE

MILVUS MIGRANS (Boddaert)

Description.—Length 24 inches. Sexes alike. Upper plumage brown, the top of the head and hind neck rather plate and the sides of the wings rather darker; a dark patch behind the eye; the outer flight-feathers blackish and the quills more one hand with dark cross-barr and mortled with whithat tood arbier cross-barrs lower above, whity-brown below, with numerical bout the chin and ratious parts a paler brown than the upper hind and the chin and ratious towards the tail. The whole body plumage is more or less marked with dark shaft-stripes, and the white bases of the feathers are convibilities.

spicuous the moment the plumage is ruffled or worn.

Iris brown; bill black, cere and gape yellowish; legs yellow, claws

black.
The bill is hooked but rather weak; head flat; legs short, feathered

for about half the length of the tarsus; wings long and pointed; tail rather long and strongly forked.

species, it is in places locally migratory.

Field Identification.—One of the most familiar birds of India; the large brown bird of magnificent easy flight which soars and scavenges about every bazaar and house. The forked tail at once identifies:

Distribution.—The Common Pariah Kite, Mileus migrans goeinda, a race of the Black Kite, which in various forms has a very wide distribution in the Old World, is found throughout India, Burna and Ceylon, extending still farther east to Hainan. Its abundance varies in accordance with that of the human population, but it avoide densely afforested tracts. It ascends the Himalayas up to about 12,000 feet butts in not common over 8000 feet. Maniba v arsiefant



Fig. 65-Common Pariah Kite (1 nat. size)

In the Kashmir Valley it is replaced by a larger race, M. m. lineatus, with the white wing-patch more pronounced.

Habits, etc.—There is very little need to introduce the Pariah Kite, which is one of the most noticeable and abundant birds of India, attracting the notice of the new arrival even before he has disembarked from the ship.

It is a fearless seavenger, and more or less spends its whole life in attendance upon man, either robbing him of food that he would fain keep or seavenging the offal that he has thrown away. Numbers frequent every bazar and village, sitting on the buildings and trees awaiting something worthy of their attention, or particuling with the contract of the buoyancy, a mixture of flapping with long leisurely strokes and short gildes, while the direction is continuously changing with spirits and cants. The wings are frequently flexed from the first joint, and the primaries often appear to be below the level of the body. All food is taken in the same way, with a swift stoop and snatch; and as the bird flies away it transfers the morsel from its foot to its beak, though with larger fragments which cannot be eaten in the air, it flies to some flowurite perch to feed at beings. If there are several Klies about, the exputure of food by one of them is the signal for an immense amount of chivying and stooping, combined with much shuffl screening, in the course of which the desirable booty frequently changes owners many times.

When watching such a scene in the bazara, it is interesting to remember that the allied Red Kite (Milkus milkus) was a similar seavenger in Medieval England, and that in the fifteenth century strangers in London were taken to see the Kites round London Bridge as one of the sights of the town. It was from seeing the bridge float all day over their heads that our ancestors named the child's properties.

At seaports this Kite joins the Gulls and Brahminy Kites in the harbour, perching on the rigging of ships and picking refuse off the

The call of the Kite, a shrill mewing squeal, long drawn and almost musical, is most frequently heard in the breeding season, though it is uttered at all times of the year. To it is due the vernacular name of "cheel" used for the bird.

The breeding season is rather variable according to locality from December to May, but the majority of eggs will be found in February. The nest is a large clumsy mass of sticks and thorny twigs lined

The nest is a large clumsy mass or stress and unber rubbish. It is generally placed with rags, "sleaves, tow and other rubbish. It is generally placed in the fork of g tree, but often also on a horizontal bough, usually as of test from the ground. The tree chosen may be either in the middle of the most crowded bazaar or solitary in the fields. Nesto no buildings are very care.

One to four eggs are laid, but the usual clutch consists of two or three. They are a very perfect out, sometimes slightly pointed at one end; the texture is hard and fine, often with a slight glaze. In coloration they are exceedingly variable; the ground-colour is pale greenish and greyish-white, blotched, clouded, speckled, streaked or sorted with various shades of brown and red from a pale buffy-brown.

In size they average about 2.20 by 1.75 inches.

As Autolycus remarks (Winter's Tale, iv., sc. 3) "when the Kite builds,
 Lab to beset linen."

THE MARSH HARRIER

CIRCUS ÆRUGINOSUS (Linnæus)

Description.—Length 22 inches. Male: Head, neck and breast buff or pale rufous with dark shaft-stripes; upper plumage dark brown; remainder of lower plumage ferruginous-brown, striped darker; the six outer flight-feathers black with their bases white; remaining flight-feathers and a patch on the overte dark slivery-grey;



Fig. 66-Marsh Harrier Adult Male (nat. size)

tail grey above isabelline below, with the upper coverts a mixture of white, rufous and brown.

Female: Very similar to the male except that the entire lower plumage, save for the creamy-buff chin and throat, is dark chocolatebrown, the feathers of the breast with rufous and buff edges. The silver-grey of the wings and tail is replaced by dark brown.

Iris yellow or yellow-brown; bill black, cere and base greenishyellow; legs yellow, claws black.

Build strong and slender; bill weak and sharply curved; a ruff of small crisp feathers extends across the throat and up the sides of the neck; wings long and pointed; tail long and even at the tip; long bare legs with sharp claws.

Field Identification.—A large brown Hawk with long wings and tail, which beats backwards and forwards over marshy ground, and robs the sportsman of wounded birds. The adult male is distinguished by the silvery wings and tail. Females and immature birds are dark chocolate-brown with a variable amount of creamy-buff on the head and shoulders, in the young forming a distinct cap on the head.

Distribution.—The Marsh Harrier is found throughout the greater part of Europe, Africa and Asia either as a breeding bird or a winter visitor, and it has been divided into two races. The typical race is a winter visitor to practically the whole of India, Ceylon and Burma, arriving about mid-September and leaving at the end of March or early in April.

Habits, etc.—The Marsh Harrier is a large, long-legged, longwinged and rather slender Hawk which is found very commonly in swampy plains and about the marshy ground of jheels and the edges of tanks and other similar places in which frogs congregate. It also visits irrigated cultivation. The major portion of its life is spent on the ground, some 20 or 30 feet in the air, searching endlessly for food. The flight is light and graceful, though rather slow; first the wings beat with regularity, then for a few yards the bird sails along with stiff outspread wings banking at intervals and turning from side to ing parties in jheels; and all sportsmen in India know the chocolatecoloured bird with buff crown and buff shoulders which is prompt to make a meal of the wounded teal, duck or snipe, that fall some distance ahead of the line of guns, and which often by hunting in front of the line puts up numbers of snipe well out of shot. When not hunting it rests on the ground or on any post or dead tree that forms a suitable lookout. At times it rises into the sky and soars in wide circles, with the wings held well above the level of the back, apparently merely for pleasure.

In its northern breeding grounds the Marsh Harrier ness about April, building in reed-beds or rank marsh vegetation. The nest a large heap of dead reeds and sedges, with the hollow lined with finer marsh grasses. The eggs number from four to six, and they are broad repetitur ovals, builsal-white in colour without markings.

They measure about 1-95 by 1-5 inches.

THE PALE HARRIER

CIRCUS MACROURUS (S. G. Gmelin)

Description.—Length: Male 18 inches, female 19 inches. Adult male: Forehead and a patch round the eye white; upper parts patch ashy-grey, more or less washed with brown; wing-quilds ashy-grey, whitish at base, the outer quills largely black towards their tips;

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upper tail-coverts barred grey and white; tail white, barred with grey, the central pair of feathers pale grey throughout; lower parts white, the throat and upper breast washed with grey.

Female: A line from the beak over each eye and a large patch under the eye buffy white; sides of the head dark brown, ruff feathers buffy white with broad brown shaft-streaks; upper plumage



Fig. 67-Pale Harrier (1 nat. size)

dark brown, feathers of the head and hind neck and of the shoulder broadly margined with pale rufous; wing-quills dark brown above, whitish below, with blackish brown cross-bands, most of the quills and largest coverts lightly tipped with whitish; upper tail-overts white, streaked with brown; central tail-feathers presish-brown, outer tail-feathers buff, all with dark brown cross-bands; lower plumage creamy white; washed with buff and streaked with dark brown and buff, the streaks diminishing in number and growing more rufous towards the tail.

Immature birds of both sexes resemble the female but the upper parts have conspicuous buff fringes; there is a pale spot on the nape and the ruff is pale creamy buff outlining the dark face conspicuously,

The under parts are bright uniform rufous-buff.

Iris yellow in adult, brown in immature birds; bill black, cere

greenish; legs yellow, claws black.

Structure as in Marsh Harrier, but a more slightly-bail brid. Field Identification.—A slender Hawk with long narrow wings and tail which is almost always seen on the wing, hunting low over the ground with an easy gliding flight. Adult male grey and white with black wing tips. Adult females and immature brids are dark brown above with barred wings and tail and a white patch over the base of the tail. Adult females are streaked below, immature brids are

Distribution.—No sub-species. Breeds from the Baltic Sea provinces east to Tarbagatai and the Tian Shan, south to Rumania, Southern Russia and Ferghana. Winters in Africa, India, Ceylon, and Burma. It is generally distributed throughout India in winter.

Monago "Harries (Cross pagargo) is found throughout the country Cocken. The Hen Harries (Cross eyesses) is onfined to the north. The Field Harries (Cross eyesses) is onfined to the north. The Field Harries (Cross melanolescus) keeps more to the south and east. Much practice is required to distinguish the females and young make of these species from each other and the Fall Harries. The adult make are, however, fairly distinctive in the field. That of the Field Harrier is complicuously pied black and white. Both Montago's Harrier and the Falle Harrier are grey and white. Most wring tips. Montago's Harrier and the Falle Harrier are grey and white with black wing tips. Montago's Harrier and the Falle Harrier are grey and white with the harrier has the state of the Harrier has the significant of the Falle Harrier has the significant of the Harrier has the significant of the Falle Harrier has the significant has the sign

Monat and treats are assigned white plumage with black on the wings the Black-winged Kite (Klamu cerulleu) may be mistaken for a Harrier. The very different flight, the halst of hovering like a Kestrel, the Short tail, the crimson eye, and the fact that the black of the wings is on the shoulders, not at the tips, immediately separates it. Found throughout India and is resident.

Habits, etc.—The Pale Harrier and the other three species metioned above are all very difficult birds to learn much about in the winter quaters in India. The Marsh Harrie, as already noted, obtrudes itself on the notice of the sportsmen, but these species are all very sly and closive. One usually sees them in the distance as they bust over a wide expanse of country and travel caseleady, doing a great deal of work to satisfy their voracious appearies. They chelly frequent stony open country, cultivated fields, see and or light properties of the properties of their very least to drop sitently on mouse or bird, insect or reptile, supround, ready to drop sitently on mouse or bird, insect or reptile, supround, ready to drop sitently on mouse or bird, insect or reptile, supround, ready to drop sitently on mouse or bird, insect or reptile, supround, ready out in the open beyond possibility of sudden danger. They route out in the open beyond possibility of sudden danger. They route in reed-beds or similar cover, and the number of individuals which consort to a favourite roost is surprising, all the species in the neighbourhood coming to the same place. All Harriers saw high in the air at times, and all have the same type of flight as described under the Marsh Harrier.

In its more northern breeding range the Pale Harrier nests in April and May. The nest is placed on the ground in a natural hollow lined with grass and leaves, usually out on a dry open plain, but also in swamps.

The clutch consists of four or five eggs or occasionally six. These are broad obtuse ovals. The ground-colour is white sometimes unmarked, but more commonly spotted or blotched, sometimes quite heavily, with reddish-brown.

The egg measures about 1.75 by 1.35 inches.

THE LONG-LEGGED BUZZARD

BUTEO RUFINUS (Cretzschmar)

Description.—Length: Male 22 inches, female 24 inches. Sexes alike. Colour very variable, with two main phases and innumerable intergradations between them.

Pale or rufous phase: Upper plumage brown, the feathers with white bases and broad light rufous edges, the sides of the head generally paler than the top; the flight-feathers are tipped with blackish-brown and mottled with white and grey and brown towards their bases; tail pale rufous, mottled towards the base with grey and white, and often with indistinct brown bands; throat and breast buffy-white with dark shaff-stripes; remainder of lower plumage white, rufous or brown, spotted or banded specially on the fanisk with dark

Dark phase: The entire plumage dark chocolate- or blackishbrown, with the base of the flight-feathers white, and with indistinct

Iris brownish-yellow; bill plumbeous, tip black; cere yellowishgreen; legs dingy yellow. The bill and legs are rather weak; tarsus partly feathered at the top; wings and tail ample and rather rounded.

Field Identification—A heavy lumpish bird which sits daily on trees and on the ground; varies in colour from pale bufly-brown and white to almost black, bur most examples have the rounded all rufous. In soaring the rounded tail is spread and the wings seen from far below are peculiarly moth-like in the arrangement of pattern, a crescent-shaped patch at the base of the outer flight-feathers being distinctive.

Distribution.—This Buzzard is divided into races which are widely spread throughout South-eastern Europe, North-eastern Africa and Asia. The typical form breeds from Greece through Southern Russia, Asia Minor and Palestine to West and Central Asia, including



Fig. 68-Long-legged Buzzard († nat. size)

the mountain ranges that border the North-western corner of India. In winter it is an abundant visitor to the plains of the north-west, including the North-west Frontier Province, Balcohistan, the Punjah, Sind, Rajputana, and the United Provinces. In the of arrival varies from August to November, and it leaves in February and March. The Common Buzzard (Butoo hates) is also found in India, and the two species are difficult to separate.

Hibits, etc.—As a winter visitor to India this fine Buzzard is very common in the wide plains of the north-west, especially thoses which are semi-desert in character. It is most abundant those tracts where desert spribls and linearls afford it an extractance, but it is also common enough in cultivation and in manhy ground. It is rather a sluggish bird, and is usually next with armonic production of the ground or in a tree, and when travelling in the linear heavy to but it is gifted really with considerable possible in the armonic and an above the ground of no long periods, moving in great and the production of the pr

spirals with the broad rounded wings held stiffly outstretched and slightly raised, and the wide tail partly fanned. In this position it is easily recognised by the very moth-like pattern of the wings and in

certain phases of plumage by the rufous tail.

The breeding season in the ranges of the North-west Frontier Province is believed to be from March to July. The neat is apparently placed on either a tree or the ledge of a cliff, and is a fairly large structure of sticks, lined with dry twigs. The eggs, two to four in number, are indistinguishable from those of the Common Pariah Kite, being broad regular ovals, greenish-white in ground-colour and richly blotched with reddish-broad the cliff of the common Pariah tree with reddish-broad tree with reddish r

They measure about 2.30 by 1.80 inches.

THE SHIKRA

ASTUR BADIUS (Gmelin)

Description.—Length: Male 12 inches, femule 14 inches. Male: Upper plumage saby blue-grey, the sides of the head and neck paler and more rufescent and sometimes with a rufescent collar; flight-feathers blackish at the tips, the remainder of the inner webs whitish marked with bluer of five broad dark brownish bars interrupted on the central and outer pairs of feathers; chian and throat buff or white with usually a medial grey stripe; breast rusty red with numerous white bars, the red gradually fading away towards the tail.

The female is a browner grey on the upper plumage, and there are traces of barring on the central pair of tail-feathers.

In immature plumage both sexes are brown above, and the lower parts are marked with brown streaks and spots.

Iris orange-yellow; bill livid at base, blue-black at tip; cere greenish-yellow; legs yellow, claws black.

Bill short, stout and curved; wing short and rounded; feet rather long and stout.

Field Identification.—The common species of small Hawk in India; a small, stout Hawk grey above, rusty below with whitsib bars, and a fierce orange eye; found sitting in trees or soaring over fairly open country. Distinguished from the true Sparrow-Hawk (Accipiter misu), which also occurs, by the stouter feet and shorter toes, and by maler colouration.

Distribution.—The Shikra has a wide distribution from Central Asia and Southern Persia throughout India, Burma and Ceylon, and eastwards to Southern China. It is divided into several races, distinguished by details of size and shade of coloration. A. b.

dusumieri is found throughout India, from the North-west Frontier Province and Kashmir to Northern Assam, extending in the Himalayas up to about 5000 feet. In Travancore and Ceylon it is replaced by the smaller and darker A. b. badius. These two races are resident, but in the winter the Central Asiatic race, A. b. cendroides, a large



Frg. 69-Shikra († nat. size)

and pale bird, visits Baluchistan, Sind, North-west Frontier Province, and the Punjab.

Although it is seldom observed in a wild state the magnificent Goshawk (Attur gentilis) must be mentioned as the species most often observed in the hands of Indian falconers. The female is the "Baz" and the male the "Jura" of that fraternity.

Habits, etc.—The Shikra is one of the commonest and bestknown Hawks in India. It avoids very heavy forest and desert but is found in every other type of country, preferring cultivated tracts with plenty of large trees. It spends most of its time sitting up in the leafy branches of large trees, but is also fond of soaring high in the air, circling for a time with wings outstretched and then flapping them vigorously. It is rather a noisy Hawk, and the shrill call of two notes titu-titu is a familiar sound in the breeding season

The ordinary food consists of lizards, frogs, grasshoppers and small birds, but in the hands of the expert falconer it is very bold. taking quails, crows and partridges most successfully. It is a favourite bird with Indian falconers as it is easily trained and will take small birds within ten days of being caught; it is often used by them to catch food for their more valuable falcons and goshawks. On the fist it is carried unhooded; when flown at its quarry it is thrown from the hand, in which it is held tightly grasped round the wings. the belly resting on the palm of the hand, with the legs stretched

The breeding season lasts from April to June. The nest is a loosely-built cup of twigs and sticks, lined with fine grass roots; it is placed in a high fork of a tree fairly well screened by leaves. The time occupied in building the nest is usually out of all proportion to the result.

Three to five eggs are laid. They are moderately long ovals, slightly pointed at one end, smooth, fine and glossless in texture. In colour they are a delicate pale bluish-white, normally unmarked, but occasionally slightly speckled with grey.

In size they average about 1:55 by 1:22 inches.

THE LUGGER FALCON

FALCO JUGGER J. E. Grav. (Plate xvi, Fig. 3, opposite page 384)

Description.—Length: Male 16 inches, female 18 inches. Sexes alike. Forehead and a line over the eyes whitish with dark streaks; top of the head brown with rufous edges; a broad streak from the eve and a moustachial streak dark brown; remainder of upper plumage brown with an ashy tinge, the outer flight-feathers with broad white bars on their inner webs; tail brown tipped with white, all the feathers except the central pair with whitish bars on the inner webs; lower parts white marked with brown streaks on the breast and brown spots on the abdomen, and the flanks largely brown.

Iris dark brown; bill bluish-grey, the tip blackish; legs yellow, claws black

The bill has a marked tooth behind the hooked tip; wing long and pointed; the tarsus is bare except on the upper part; claws

Field Identification.—The ordinary resident true Falcon of India: ashy-brown above, white with brown markings below. Found in pairs in open plains: in flight the pointed wings and full tail are noticeable. Ashy-brown upper parts distinguish it from the Falcons of the Peregrine type, while the Saker Falcon may be separated from it by having white spots on the central tail-feathers.

Distribution.-This Falcon is fairly common throughout India from about 2500 feet in the foot-hills of the Himalayas down to about Southern Madras. On the west it occurs in Baluchistan and the North-west Frontier Province extending to Cachar in the east and it has once been obtained in Manipur. Outside these limits it has not been found and towards the south of its range it is not common. Wherever found it is a strictly resident species.

The well-known Peregrine Falcon (Falco peregrinus) of Europe, of which the adult has the upper parts bluish-grey with a black cheek stripe and the lower parts fulvous-white with dark barring, is a winter visitor to the whole of India and Ceylon. The Saker Falcon (Falco cherrug) with the upper parts brown and the lower parts white spotted with brown, is a winter visitor to the semi-desert areas of the north-west.

Habits, etc.-This Falcon avoids areas of heavy forest and is a bird of the open plains, wherever trees are found either in cultivation or in semi-desert country. It mates for life, and the birds of the pair keep very much together; it is a very pretty sight to watch a pair hunting as they deliberately work together, driving the quarry towards each other and stooping at it in turn. They often attend sportsmen out shooting and take birds that are wounded. The Lugger is a fine flier and on occasion can be courageous enough, but it belongs to the Saker or Desert Falcon group rather than to the Peregrine group, and has not quite the build and speed and courage of the latter. Its food, therefore, consists more frequently of lizards, gerbils, insects and small birds than of bigger game. It can be and often is trained by the falconer to kill crows, partridges, and similar quarry, but is naturally usually neglected in a country where nobler Falcons can be so easily obtained. The male, however, is frequently kept by the falconer as a decoy hawk with which to catch either Sakers or Peregrines. Silent as a rule, both sexes indulge in a harsh chattering scream when

The eggs may be found from January to April, but the majority

are probably laid in February. The nest varies a good deal; the eggs may be laid in a hollow straw or leaves is also built on buildings or in trees, or old nests of appropriated nests always seem to be large ones, generally those of

Three to five eggs are laid. In shape they are a broad oval. slightly pointed at one end, of a dull, glossless, slightly chalky texture In colour they are rather variable. The ground-colour is reddish brownish or vellowish-brown, very thickly speckled and spotted all over with a darker and richer shade of the ground-colour; these markings sometimes collect in a cap at one end; some eggs are lightly and dully marked; others are richly coloured with large blotches and clouds.

The average size is about 2.00 by 1.55 inches.

THE TURUMTER

FALCO CHICOUERA Daudin (Plate xvi, Fig. 1, opposite page 384)

Description.-Length: Male 12 inches, female 14 inches. Sexes alike. Top of the head, ear-coverts, and a narrow cheek-stripe chestnut; upper plumage ashy-grey, the shoulders and sides of the wings more or less barred with brown; outer flight-feathers blackish-brown, closely barred with white on the inner webs; tail grey with narrow black bars, a very broad black band close to the end, and a white tip; lower parts white, lightly streaked on the breast and barred on the flanks and abdomen with blackish.

Iris brown; bill greenish-yellow, blue-black at tip; cere and

eyelids yellow; legs yellow, claws black,

The bill has a sharp tooth inside the hooked tip; wings long and pointed

Field Identification.-A very pretty little ashy-grey Falcon with barred white under parts, easily recognised by the bright chestnut head. Found in pairs in open country.

Distribution.—The Turumtee or Red-headed Merlin is found almost throughout the plains of India from the foot-hills of the Himalayas right down to the south, and from the North-west Frontier Province and Sind across to Assam. It is a resident species,

Habits, etc.—This delightful little Falcon is usually found in wide cultivated plains, especially those where small groups of trees and long shady avenues are common. It avoids heavy forest. It pairs for life, and the birds of the pair usually go about together, and are very clever at hunting in company; for instance, I have seen one of a pair "waiting on" above a thorn tree in which some doves had taken refuge, while its mate made strenuous, though unsuccessful, endeavours to drive them out to it. For its size it is one of the most courageous of the Falcons, and is pugnacious to boot, a fact that is known to every crow and kite that lives anywhere in the vicinity of the tree where it elects to build its nest. The bird is well known to all Indian falconers, and it is occasionally trained and flown at rollers, crows, larks, and other similar small quarry. The flight is very swift and graceful with regular wing-beats, and the bird stoops at its quarry with wonderful skill and speed, a most finished performer. It has the same screaming cry as other Falcons, but is rather noisier than

The breeding season is from January to May, but most eggs will be found in March. All its nests are placed on trees, and never on cliffs or buildings.

Although this Falcon occasionally utilises the old nest of a Crow it usually builds its own nest afresh every year, placing it in one of the highest forks of a tree. It is a neat, well-built cup of sticks and fine twigs, the egg cavity being lined with fine roots and straw with a few

The normal clutch consists of four eggs, but three or five are occasionally found.

The egg is a regular rather long oval, and the texture is fine, but rather chalky, with very little gloss. The ground-colour is reddishwhite, virtually concealed by frecklings and specklings of dull brownish-

Description.-Length 14 inches. Male: Top of the head and sides of the neck ashy-grey with fine black shaft lines; a dark grey cheek-stripe; sides of the face whitish with dark streaks; upper spots; a patch over the base of the tail ashy-grey; flight-feathers dark brown, their inner webs much indented with white; tail ashy-grey above, whitish below, with a broad black band near the end and white tips to the feathers; lower plumage rufous-fawn with the breast and flanks streaked and spotted with brown.

Female: Upper plumage bright rufous-brown, streaked on the head, and banded elsewhere with brownish-black; flight-feathers dark brown, their inner webs much indented with white; tail rufousbrown, barred with black, and with a broad black band near the end; lower plumage rufous-fawn, the breast and flanks spotted with brown.

Iris dark brown; bill bluish-black, paler at base; gape, cere and

eyelids yellow; legs orange-yellow, claws black.

The bill is short and with a sharp tooth behind the hooked tip; wings long and pointed; tail long and slightly graduated.

Field Identification.—A small Falcon with pointed wings and rather long fan-shaped tail, easily recognised by a peculiar habit of hovering stationary in the air with flickering wings. The colour is reddish with a broad black band across the end of the tail; the female has the back



Fig. 70-Kestrel Adult Male († nat. size)

cross-barred with black, the male more lightly spotted, while the male has the upper surface of the head and tail bright blue-grey.

Distributions—The Kestral is a bird of wide distribution found throughout the Palearctic area, and divided into a number of races hich are often separated states and divided into a number of races his are often separated states. The talk the control of the tension of the tens

ground; small birds are also ocasionally caught. It therefore spends most of its time hunting over cultivated tracts, she althin-side and open grassy plains; its flight is fast and strong, and it usually flies at a considerable height from the ground, travelling straight for a while and then moving in wide circles. Its course is constantly checked by the bird hanging stationary in mid-sir, the head to wind, the wings faming very rapidly, and the tail depressed and outspread. In this position it seams the ground intently, watching for some moving insect or mouse. If the chance is good, it drops perpendicularly to earth and makes its capture, or checke half-way and hovers again before the drop; or the quarry takes cover and the Kentrel flies on farther to undisturbed ground, to hover and search, new. This hovering is very characteristic, and to it are due the English country mannes of "Stannel" and "Windrover"; while the perpendicular drop to earth is very distinct from the stoop of most of the Falcons and Hawks.

It perches a good deal on rocks or trees, and thence watches for food, its head increasantly turning and bobbing. Then silently it leaves the perch and lies with half-bent wings towards the ground, putting on a desperate dash and spurt as it approaches the object of its stoop. All the movements of this little Falcon are graceful and a pleasure to watch.

The call is a shrill scream, hee-hee-hee, and when breedings the

Kestrel is rather noisy and pugnacious, chasing and mobbing eagles, kites, and crows that approach the cyrie.

In Southern India the eggs are laid from February to April, and

in the Himalayas from April to June.

The eyric is in our area almost invariably in holes and rocky

ledges of cliffs; though occasionally as elsewhere it is placed on ruined buildings and in trees. The nest, which is often a mere apology, is composed of twigs, roots, rags, strips of cloth, and other rubbish.

The clutch consists of two to six eggs, but four or five are the usual

The eggs are broad ovals, somewhat pointed towards one end; the texture is fine and rather chalky, and there is no gloss as a rule. The ground-colour is red, of various shades; it is blotched, mottled, freckled and sported with darker tints of the same, the markings being thickly and evenly distributed. Some eggs are rather browner or wellower in owneral amperance.

In size they average about 1.55 by 1.20 inches

lower plumage rufous-fawn, the breast and flanks spotted with brown.

Iris dark brown; bill bluish-black, paler at base; gape, cere and

eyelids yellow; legs orange-yellow, claws black.

The bill is short and with a sharp tooth behind the hooked tip; wings long and pointed; tail long and slightly graduated.

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Habits, etc.—The Kestrel is necessarily a bird of open country as it feeds on lizards, grasshoppers and mice which it takes from the

ground: small birds are also occasionally caught. It therefore spends most of its time hunting over cultivated tracts, bare hill-sides and open grassy plains; its flight is fast and strong, and it usually flies at a considerable height from the ground, travelling straight for a while and then moving in wide circles. Its course is constantly checked by the bird hanging stationary in mid-air, the head to wind, the wings fanning very rapidly, and the tail depressed and outspread. In this position it scans the ground intently, watching for some moving insect or mouse. If the chance is good, it drops perpendicularly to earth and makes its capture, or checks half-way and hovers again before the drop; or the quarry takes cover and the Kestrel flies on farther to undisturbed ground, to hover and search anew. This hovering is very characteristic, and to it are due the English country names of "Stannel" and "Windhover"; while the perpendicular drop to earth is very distinct from the stoop of most of the Falcons and Hawks.

It perches a good deal on rocks or trees, and thence watches for food, its head incessantly turning and bobbing. Then silently it leaves the perch and flies with half-bent wings towards the ground, putting on a desperate dash and spurt as it approaches the object of its stoop. All the movements of this little Falon are graceful and a pleasure to watch.

The call is a shrill scream, hee-hee-hee, and when breeding the

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In size they average about 1.55 by 1.20 inches

THE COMMON GREEN PIGEON

CROCOPUS PHŒNICOPTERUS (Latham)

Description—Length 13 inches. Sexes alike. Head, neck and upper breast, save for a grey patch round the back of the head, greenish-yellow, deeper on the upper breast and hind back; an asaby-grey collar found the base of the neck; upper plumage yellowish olive-green; a like patch near the bend of the wing; quills and the larger coverts blackis, conspicuously edged with yellow; beneath; lower breast, also men, and whole inner surface of the beneath; lower breast, also men, and whole inner surface or the lower flush dark green with broad yellowish white edges; under tail-tower flush dark green with broad yellowish white edges; under tail-

Iris blue with an outer circle of pink; bill soft and swollen at base and greenish, the hard anterior portion bluish-white; legs

orange-yellow, claws bluish.

A stout heavily-built bird with a rather swollen beak.

Field Identification.—Entirely arboreal, found in flocks in large fruit-bearing trees. A heavy stout pigeon, greenish-yellow and ashygrey in colour, the wings blackish with very bright yellow edgings to

the feathers; a small lilac patch on the shoulder.

Two smaller species of Green Pigeon are locally common in North-East and South-West India and Ceylon. These are the Orangebreasted Green Pigeon (Dendrophansa bientad) with violet and orange patches on the breast and the Grey-fronted Green Pigeon (Dendrophansa pombadara) which has the back, deep maroon, in both cases in the male.

Habits, etc.—These Green Pigeons are stoutly built, sluggish birds, usually rolling in fat, which are found in flocks and lead an

entirely arboral existence. Their feet are strong and adapted for climbing, and they move about the branches of a tree much like a parrot, in pursuit of the wild figs and fruits on which they feet; they are very find of the figs of the banyan and peepul trees and frequent, therefore, in particular the large avenues of these trees which are common in Northern India. In colour they so closely resemble the leaves of the trees that they inhabit, and they are so sluggish in their movements, that the entire flock easily scapes notice in a tree; but when flushed the flight is strong and the birds travel well like other pigeons, though they are look to desert their particular grows. At the next the female sits close and will only leave on the near approach of the climber. The call is a peculiar, rather musical, whistle. They appear to drink very rarely, probably obtaining sufficient moisture from the finits which form their food.

The breeding season is from March till June

The nest is a slight platform of interlaced twigs, and is so sketchy in construction that the eggs are visible from below through the bottom: it is unlined and has only a slight depression on which the eggs rest. It is placed about 20 feet from the ground in a tree, often so as to be concealed by a bunch of foliage.

Two eggs are laid; they are similar to the eggs of all pigeons, a broad regular oval, pure unmarked white in colour, with a hard

close texture and a good deal of gloss.

In size they average about 1.25 by 0.95 inches.

THE KOKLA GREEN PIGEON

SPHENOCERCUS SPHENURUS (VIGOR

Description.—Length 13; inches. Male: Head, neck and lower plumage yellowish-green, tinged with rufuso an the cowns, and with orange and pink on the upper breast; upper back greyish, passing into maroon-red on the middle of the back and at the bend of the wings; a patch above the base of the tail and the sides of the wings of the green, the outer forecast with pale yellow leaf with view of the court of th

Female: Similar to the male, but lacks the orange on the breast and the maroon-red on the wings and back which are olive-green; the patch under the tail is dark green with broad buff borders.

Iris bright blue with an outer ring of pink; bill and skin round

the eyes blue; legs lake-red.

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GREEN IMPERIAL FIGE

Bill swollen and soft at base; tail rather long and graduated, the under coverts being as long as the outer tail-feathers.

Field Identification.—Himalayan form; purely arboreal and comes to notice through the remarkable whistling call. Long graduated tail in combination with deep maroon on the back and wings, and orange and pink breast separate the male from other green pigeons.

Brandstage -The typical race of this Pigeon is found throughout the length of the Himshaya from Kashmir and Hazara to Bhutan, at elevations from acco to Scoo feet; to the east it extends through Assum, the Chin Hills and Shan States into Tenasserim. In the Western Himshayas it is purely a summer visitor, but in the eastern portion of its range it appears to be chiefly a resident species.

Habits, etc.-The Kokla is a bird of shady wooded glens and hill-sides and is strictly arboreal in its habits, being only very occasionally seen on the ground and that only for drinking purposes. These pigeons feed entirely on fruits, and while in pursuit of them in the trees are very active, gliding about the branches almost like squirrels: with their strong short legs they are able to lean over and reach out to berries in the most wonderful manner. When not feeding they are rather sluggish and sit motionless in the trees, escaping notice from their colour; their presence, however, is betrayed by the beautiful call-note. This is a long melodious but slightly grating whistle, which from its length and tunefulness seems to be human rather than to proceed from the throat of a bird, much less a pigeon; it is roughly described by the words Why, we what cheer : what are we waiting for? The courting note is a low coo-coo. In summer this species is found only in pairs or small family parties, but in winter they collect into flocks like other green pigeons.

The flight is direct and swift in spite of the whole nature of the bird which is essentially dull and sluggish.

The breeding season is from April to June. The nest is a slight platform composed of coarse grass and small dry twigs placed in a branch of a tree at any height from 6 to 50 feet from the ground.

Two eggs are laid. These are in shape a very elongated oval, narrow and rounded at the ends; they are fine in texture with a fair gloss, and are pure spotless white.

They measure about 1.18 by 0.89 inches.

THE GREEN IMPERIAL PIGEON

Muscadivora ænea (Linnæus)

Description.—Length 17 inches. Sexes alike. Whole head, neck and lower parts ashy-grey with a pink tinge; back, rump and sides of the wings bright metallic green with a high gloss; wing quills blackish washed with ashy-grey; tail black washed above with metallic green, a dull liver-coloured patch under the tail.

Iris crimson; eye-rim purplish-red; bill horny grey, region of the nostrils dull purplish-red; legs purplish red, claws dusky horn.

Field Identification.—A large heavy Pigeon with ashy head, neck and underparts and bright metallic green saddle, wings and tail. A tree-haunting species with a peculiar resonant call.

Distribution—A widely apread species found in India, Ceylon, Burma, the Malay countries and laulands to the Philippines, Bornoo, Java and Flores. In India it is a resident with local movements based on food supply and is divided into two races merely on the question of size. Mr. as putilla is the smaller race. It is found in Ceylon and in South India, extending up to about the 20th Engles of lattingle though on the Malabur coast it is rare above North Kanara. On the eastern side it intergrades through Orisas and Bengal into the larger New Proposition of Assam and the Himahama and Bengal into the larger New Toods of the Coast in the Philippines and the Bower little and valleys up to at least 3000.

Jerdon's Imperial Pigeon (Ducula badia) is another large species—but dull black, brown and ashy-grey in plumage—found in Southwest India with another race in the Eastern Himalayas and Assam.

Habit, etc.—The Green Imperial Pigeon is a forest-haunting bird found in many types of forest both heavy and light, evergreen and decidence it also visits low scrub. It goes about as a rule singly or the control of t

This pigeon apparently never descends to the ground even to drink. It feeds chiefly in the mornings and evenings, resting during the heat of the day in a shady tree. In disposition it is somewhat shy.

The food consists of wild fruits and berries which although often of large size are swallowed whole. The gape and gullet are remarkably capacious and elastic and can be extended to take in fruit a couple of

inches in diameter. According to Jerdon the flocks visit the large salt swamps of the Malabar coast in order to eat the buds of Aricennia and other shrubs and plants that grow in brackish soil and tidal ground. This bird is not quarrelsome like many of the Green Pigeons and the members of the parties are always gentle and sociable together. If a bird is wounded by a sportsman, however, it erects its feathers so as to double its size in appearance and strikes out violently with the wings,

The call is remarkable and easily recognised. It is a deep resounding boom wuh-wooh or gur-gur goom goom goom astonishingly powerful that when the bird is at rest. It resounds through a valley and has

something almost weird and eerie about its tone.

The main breeding season is from February to April. The nest is built at a height of some to to to feet from the ground in trees and bamboos and is of the ordinary pigeon type, a flimsy platform of a few sticks and stiff straws and grasses.

One or two eggs are laid. The egg is of a broad oval, very obtuse * at both ends, with a very fine compact shell and a slight gloss. It is pure white.

The egg measures about 1.6 by 1.25 inches.

THE BLUE ROCK-PIGEON

COLUMBA LIVIA Gmelin (Plate xviii, Fig. 2, opposite page 432)

Description.-Length 13 inches. Sexes alike. Plumage slatygrey almost throughout, the neck glossed all round with metallic green and purple; the back and wings are rather darker in tint and there is sometimes a paler bar across the rump, in some specimens white: two black bars across the wings; tail with a broad black bar across the end and with a white patch at the base of the outer feathers; under surface of the wings very pale grey or white.

Iris brownish-orange; bill black, base swollen and mealy white; legs reddish-pink.

The tail is rather short, and the wings rather long and pointed. Field Identification.-The commonest Pigeon of India, slaty-grey in colour, with two dark wing-bars and metallic reflections round the neck; abundant about cities and villages,

Distribution.-This Pigeon is very widely distributed around the shores of the Mediterranean, extending northwards to the British Isles and Faroes, and eastwards also into Africa, Asia Minor, Palestine, Turkestan, Transcaspia, and India, Ceylon and Upper Burma. It is divided into a number of local races, of which two are found in India. These birds are very variable in colour, partly no doubt owing to interbreeding with domestic stock, and there has been a good deal of confusion as to exactly what races are found in India. C. l. intermedia is the resident bird throughout the whole of India, except the north-west. It is a very dark bird with a dark grey rump. C. l. neglecta, the form found in Turkestan, North-eastern Persia, Afghanistan, and Kashmir, extends also in the North-west Frontier Province, Punjab, Baluchistan, and Sind. It is a paler bird. with the rump varying from pure white to pale blue-grey. This race is found up to 13,000 feet in the Western Himalayas, and is to some extent a local migrant.

The well-known Snow-Pigeon (Columba leuconota) of high altitudes in both the Eastern and Western Himalayas has a large proportion of

The Nilgiri Wood-Pigeon (Columba elbhinstonii) is found in the higher parts of the Western Ghats, from Mahableshwar to Cape Comorin, being best known from the high sholas of the Nilgiris. The head is grey, with a spangled black and white neck patch; the upper parts are dark reddish-brown and blackish, while the lower

Habits, etc.-The Blue Rock-Pigeon is one of the most familiar birds of India, being abundant wherever the buildings erected by man or the cliffs and rocks of nature afford it nesting places; its numbers respond to the amount of accommodation available, so that in places it becomes incredibly numerous even to the number of many thousands of pairs. This result is assisted by the fact that in most parts of India a certain measure of sanctity attaches to the birds and they are not molested; in some places food is distributed to them, with the result that they often become absurdly tame, feeding in crowded market places and nesting in the buildings around with complete disregard of their human neighbours. They have usually a morning and evening flight out to cultivation where they feed on corn and seeds in the fields, and they are undoubtedly responsible

The flight is fast and straight and the birds generally collect into flocks, some twenty or thirty strong, so that, where there is no local prejudice against their being shot, excellent sport may be obtained by waiting in the line of flight in the mornings or evenings.

The love call is a rich coo-roo, cooo-oo-oo, similar to that of the domestic pigeon, and where the birds are very abundant the rise and fall of the cooing that goes on swells into a soft melodious rumbling that is very delightful.

Eggs may be found at any time of the year, but the breeding season proper is apparently from January to May: more than one brood is doubtless reared in the year. The nest is a fairly substantial platform of thin sticks, twigs and roots, with a slight depression in the centre. It is placed in or about houses, buildings and ruins in any situation that affords shelter from the elements, in the sides of wells, and in the crevices of rocks and cliffs.

The clutch consists of two eggs; these are broad or clongated ovals, rather variable in shape, fine and hard in texture, pure white, and rather glossy.

In size they average about 1.45 by 1.12 inches.

THE RUFOUS TURTLE-DOVE

STREPTOPELIA ORIENTALIS (Latham)

Description—Length 13 inches. Sexes alike. Head, neck and beatching timed with vinous; you cach aid of the neck a patch of the head to the neck and the neck and

Iris orange; eyelids pale blue with red edges; bill brown, vinous at base; legs vinous red, claws black.

The tail is rather long and graduated.

Field Identification.—A rather large vinous-brown Dove with conspicuous rufous scale markings on the wings, and a parts of blad and blue-gree scale markings on the sides of the neck; dark graduated tail edged with white or slate-grey is conspicuous in flight. Shyer than most Indian Doves.

Distribution.—The Ratous Turtle-Dove is so closely allied to the Common Turtle-Dove (S. turtus) of Europe that its races are sometimes considered as races of the Western bird. Accepting, however, their distinctness, we may say that the Ratious Turtle-Dove extends in several races from Eastern Siberia, China, Japan and Tibet to the greater part of India, Ceylon and Burma; also Western Central Asia, Turkestan and Afghanistan. In India we are concerned with three forms, which differ chiefly in the tint of coloration. S. o. memo breeds in South-western Siberia and Turkestan, and the Himalaysis from Afghanistan to Western Neptla at heights of from a goo to 1; 1; coc. feet, migrating into the plans of India is writer. This form has the over less resident from Iverdien just the hilly portions of Southern and Central India. Finally, S. o. agricola is found in Eastern Bergal, Cachar and Assum, and along the base of the Himalaysus under 2000.



1. Turumtee. 2. White-eyed Buzzard. 3. Lugger Falcon. 4. Spotted Owlet

feet in the terais of Nepal and Sikkim; and again southwards into

Mention must just be made of the Emerald Dove (Chalosphagus indica) which is found along the Western Ghats, the Chota Nagus area, Bengal and the Lower Himalayas as far west as the Junna. The back- and wing-coverts are brilliant emerald green and the under parts deep vinaceous.

Habits, etc.—The Rufous Turtle-Dove when breeding is found usually in thick forest, but is otherwise mostly observed in the more open and equitivated areas where large trees, groves and gardens provide it with shelter in easy reach of the stubbles where it likes to feed on fallen grain and seeds. It is very active on the ground, running and walking freely, and when disturbed invariably takes refuge in trees. In winter and on migration numbers may be found in company,



Fig. 71 - Rufous Turtle-Dove (4 nat. size)

but they may hardly be said to gather into flocks, as the birds do not keep together, but thy off in all directions when disturbed. It drinks very frequently. The note is a dull sleepy drone, coo-oco-olahour, and the male has a breeding display which consists of flying into the drink of the

The breeding season is said to be practically throughout the year according to locality; in the Himalayas most nests are found in June, in North-eastern India in April and May, and in Central and

The nest is the usual scanty platform of twigs and bents, through which the eggs and young can be seen; it is placed in a tree or bush at no great height from the ground and there is no particular effort at concealment.

The clutch consists of two eggs, which are regular ovals, pure white and very glossy.

They measure about 1.22 by 0.93 inches

THE SPOTTED DOVE

TREPTOPELIA CHINENSIS (Scopoli)

Description.—Length 12 inches. Sexes alike. Top and sides of the deviations-grey; back and sides of the neck black, each feather cloven at the tip and ending in two white spots; upper plumage brown, spotted on the upper back and wings with vinous pink, the spots in pairs on the feathers and on the wings divided by a wedgeshaped black shaft-stripe; an ashy band on the outer edge of the wing; wing-quills brown; the two middle pairs of tail-feathers brown, the others black with grey or white tips; lower plumage vinous, whitsh on the thoust and under the tail.

Iris hazel, surrounded by a reddish sclerotic membrane; skin round the eye reddish; bill dull leaden-black; legs dark purplish-red.



Fig. 72-Spotted Dove († nat. size)

Field Identification.—Easily recognised by the brown upper parts conspicuously spotted with vinous pink, by the white-spotted black patch on the neck, and by the vinous under plumage and grey band on the edge of the wing. Feeds much on the ground and is very tame.

Ditribution.—The Spotted Dove is found throughout the greater part of India, Con and Burma, extending eastwards to Siam, Cochin-China, the Mahy Peninsuka, Sumatra, and China. It is divided into a world races which differ merely in small details of coloration. So contains it is found throughout most of India from the foot-bills of the surfamin is found throughout most of India from Travanore where its replaced by the Cingalese form S. c. cylonomis. On the west its replaced by the Cingalese form S. c. cylonomis of the contains of the cont

Habits, etc.—This Dove is a very familiar and widely-spread species, being found in almost every type of country, provided that water is easily accessible, as it is intolerant of thirst and drinks freely. It is, however, most common in fairly open cultivation, and it is much given to haunting roads and village paths where it walks about searching for grain and seeds; it is found also in the stubbles. It appears to pair for life, as the pairs keep very much together, feeding and flying in company and resting side by side in the trees. The call is a soft trisylable coo, represented by the syllables ku-keroo-hu or oot-raou-oo, and it is freely uttered.

When disturbed on the ground these Doves rise very straight into the air for a few feet, with a great fluster and clapping of wings, and then fly swiftly with quick distinct wing-beats and the tail partly spread so as to show the white edging. They seldom fly for any distance, and when settling slide downwards to the chosen perch with occasional wing-beats, the whole action and carriage appearing very stiff. The courting display consists of a flight straight up into the air with a volplane downwards, the wings and tail stiffly spread as

in other Doves.

The breeding season is throughout the year, and probably several broods are reared annually. The nest is a slight and scanty platform of sticks, and it is placed usually at no great height from the ground,

in and about buildings or on trees and bushes.

Two eggs are laid; they are the usual regular oval, pure white, fine and hard in texture with a good deal of gloss.

In size they average about 1.06 by 0.82 inches.

THE LITTLE BROWN DOVE

STREPTOPELIA SENEGALENSIS (Linnæu (Plate xvii, Fig. 1, opposite page 408)

Description.—Length to ifsches. Sexes alike. Head, neck and breast like tinged with vinous; chin whitish; or the sides of the neck a gorget of bake fathers forked at the ends which are broadly tipped with ferruginous; upper plumage light earthy-brown; an asaby-grey patch on the outer edge of the wings; qualk dark brown; tall, central pair of feathers earthy-brown, the next two pairs chiefly grey, the outer pairs with the basal half blackish and the remainder white; the vinous breast passes into the white of the lower plumage; wein linius and flanks dark alwayers.

Iris dark brown with a whitish inner circle; bill black; legs lakered, claws black.

The tail is rather lone and graduated.

Field Identification.—A small rather slender Dove, very tame and confiding; brown in colour with a grey patch on the side of the wings and a black patch spotted squarely with ferruginous on the sides of the neck.

Distribution,-This dainty little Dove has a wide range through Africa, the Middle East and South-western Asia, and is divided into the whole Peninsula of India westward of Bengal, but it is rare on the Malabar coast and does not extend to Bengal itself. In the Outer Himalayas it may occasionally be found up to 5000 feet. The Persian race, S. s. ermanni, apparently straggles into the north-western corner of India. In the main a strictly resident species, it is locally a partial migrant.

Habits, etc .- This is one of the most familiar and abundant of Indian Doves, and is well known from the fact that it frequents the neighbourhood of houses, walking about on the ground outside the verandahs and often coming into them for nesting purposes. It also rests and walks about on their roofs. It is quiet and gentle in its movements and far from shy, and in general acts up to the popular conception of a Dove, a conception which so many other species fall very short of.

It avoids heavy forest, but is abundant in cultivation and light bush-jungle, especially on low stony hills and in semi-desert areas, The flight is swift and strong, and when suddenly disturbed from the ground a curious effect is given to the flight by the extremely rapid wing-beats which seem almost in danger of upsetting the bird. The food consists of seeds and grain,

The call is a rather harsh coo, cru-do-do-do-do.

The breeding season is very irregular and extended, from January to October, and two or three broods are reared.

The nest is composed of thin twigs, mixed with grass stems and a few roots; it is in the shape of a very fragile platform, often nearly meriting Eha's familiar description of a dove's nest as composed of two short sticks and a long one. It is built in a variety of situations, though generally at no great height from the ground, in trees, bushes and plants, on rolled-up chicks in verandahs, on window-sills and beams, and even very occasionally on the ground.

The normal clutch consists of two eggs, but one and three are found, though rarely. The eggs are rather broad, nearly perfect ovals, pure white, of close texture and rather glossy.

They average about 1.00 by 0.85 inches in size.

THE INDIAN RING-DOVE

STREPTOPELIA RISORIA (Linnæus)

Description.-Length 12 inches. Sexes alike. Head and neck grey with a lilac tinge; 'a black collar narrowly bordered with white round the hind neck; upper plumage light brown passing into ashygrey on the wings, the outer flight-feathers dark brown; central



broad white tips; breast pale lilac passing through ashy-grey into slaty-grey under the tail; wing lining white.

Iris crimson, eyelids whitish; bill black; feet dark pink-red,

The tail is rather long and graduated.

Field Identification.- A pale grey and brown Dove with a plain black collar round the base of the neck; one of the commonest birds

Distribution.- This is by far the commonest Dove in India and is spread throughout India and Ceylon though it avoids forest areas. To the west it extends as far as the Balkan Peninsula, and in the Himalayas it is found at elevations up to 11,000 feet, extending also northwards to Turkestan. While mainly a resident species it is locally a migrant. From Burma to Cochin-China and Yunnan it is replaced by another race, S. r. xanthocycla, distinguished by the vellow

Habits, etc.-The Indian Ring-Dove avoids heavy forest and is found in great abundance in cultivation and open country wherever trees, large bushes and hedges provide cover for it. It comes freely into gardens, but is not so bold at entering verandahs or feeding on the paths as is the Little Brown Dove. These Doves collect freely into parties and flocks often of considerable size, and are very swift and strong fliers, leaving their perch with a sounding clatter of the hard-pointed wings. The call of this species is a dreamy how-do-do, well known by all residents in India as a sign of the hot weather. The food consists of the seeds of various grasses and weeds.

Most nests will be found in April and May; but as the various pairs rear more than one brood and often nest at different times, the

breeding season may be said to last throughout the year.

The nest is always placed on trees or bushes, in most cases at heights between 5 and 20 feet from the ground; thorny bushes are usually preferred. Sites in buildings are not used after the manner of the Little Brown Dove.

The nest is the usual Dove platform of small sticks, dry grass stems and fine roots, sometimes fairly solid in construction with a

saucer-like cavity for the eggs.

The clutch consists of two eggs. They are broad and perfect ovals, hard in texture and somewhat glossy. The colour is white but with a slight ivory tinge, approaching that of the eggs of the Red Turtle-Dove

They average about 1.16 by 0.90 inches in size.

THE RED TURTLE-DOVE

(ENOPOPELIA TRANQUEBARICA (Herman)

(Plate xvii, Fig. 2, opposite page 408)

Description.-Length 9 inches. Male: Head dark ashy-grey down to a black collar round the hind neck; remainder of upper plumage vinous-red except for a dark slaty-grey patch on the base of the tail; wing-quills dark brown; central tail-feathers brown, next two pairs dark grey at base and paler at the ends, the three outer pairs black at the base and white at the ends; lower parts vinousred, whitish under the chin and tail; wing lining grey.

Female: Brown above, greyish on head, rump, flanks and edge of wing; breast light brown; a black collar round the neck; tail as

Iris dark brown; eyelids plumbeous; bill black; legs vinaceous

Field Identification.-The only Indian Dove in which the sexes are different; male warm vinous-red with grey head defined by a black neck-ring: female brown with a black neck-ring. Latter can be distinguished from the Indian Ring-Dove by the smaller size,

Distribution.-Widely distributed in India, Ceylon and Burma, and extending through Stam, Cochin-China, and China to the Philippines, this beautiful bird is divided into three races. Two of these concern us. The typical race is found throughout India. occurring on the west in the North-west Frontier Province, but not in Baluchistan; and in the North-western Himalayas it is found only in the lowest of the foot-hills. In the Eastern Himalayas, however, it seems to ascend higher. Birds from Assam and Burma are more richly coloured and have been separated as Œ. t. humilis. In the main a resident species, but locally migratory.

Habits, etc.-The Red Turtle-Dove is a less familiar and confiding away from the immediate neighbourhood of villages and gardens. It is distributed in all types of country excepting extreme desert and heavy forest, and chiefly prefers cultivation with large and shady trees, but it is very local, common in some tracts and wanting in others without apparent reason. Water, however, is essential to it,

Usually it is found in pairs, but occasionally large flocks collect,

and these sometimes consist entirely of males.

and when disturbed it usually flies straight away instead of getting

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into the nearest tree like the other common Doves. The flight is very swift, as might be guessed from the wing with its long first primary.

The call is very distinctive, a rather deep cru-u-u-u repeated four or five times quickly without pause, and with the emphasis on the first syllable.

The breeding season extends almost throughout the year in various parts of India, but most eggs are to be found about May probably two broods are reared.

The nest is a very flimsy platform of twigs, bents and dry grass, It is always placed in trees and never on buildings. A large tree is generally preferred, and a favourite situation is towards the end of a lower bough at a height of 8 to 15 feet from the ground.

Two eggs are normally laid though clutches of three are sometimes found

The egg is a slightly elongated oval, fine in texture and glossy; it is white in colour, but usually more tinged with the creamy tint of ivory than are most Dove's eggs.

The eggs measure about 1.02 by 0.08 inches.

THE IMPERIAL SANDGROUSE

PTEROCLES ORIENTALIS (Linnæus)

Description.-Length 14 inches. Male: Throat ferruginouschestnut, extending round the sides of the neck to the back of the head; a triangular black patch on the throat; crown and sides of the head, the lower neck all round, and the upper breast pale earthy-brown; upper plumage blackish-grey, each feather fawncoloured towards the base and tipped with ochraceous-yellow, the vellow becoming more pronounced towards the edge of the wing; quills slaty-grey, the shafts and concealed portions blackish; tail buff barred with black, the central pair of feathers tipped with greyish-black, the remainder with white; a black gorget across the breast, followed by a broad band of buff; abdomen and flanks black; wing lining white; legs and under tail-coverts buffy-white.

Female: Pale fawn colour, the head, neck and upper breast marked with black shaft streaks; chin and throat yellowish, bounded behind by a black line beyond which the fore-neck is ashy; back and upper plumage including the central tail-feathers with irregular curved black cross-bars; remainder of tail, the flight-feathers and the lower parts from the black gorget as in the male,

Iris brown; eye-rim pale lemon; bill bluish-grey; feet grey-Weight 17 to 181 oz.

The wings are long and pointed; tail wedge-shaped (but without pintail feathers); tarsus feathered down the front, the toes short and bare.

Field Identification. Sandgrouse occur in flocks in semi-desert country. They escape notice by their protective coloration while feeding on the ground, and are most often noticed in flight, travelling straight and fast, high in the air. Stout compact bodies, pointed wings and tails, close order, and fast regular wing-beats (the whole reminiscent of a flock of Parrakeets) are distinctive. This species may be easily recognised in flight by contrast between black bellies and white wing lining; on ground the larger size, combined with yellow markings of back and dark throat-patch of males, distinguish

Distribution.-India is on the extreme eastern limit of the range of this fine Sandgrouse which is found from Spain and Portugal



Fig. 74-Imperial Sandgrouse (+ nat. size)

(I have seen it as far north as Navarre) through North Africa and South-western Asia. In India it is most abundant in the sandy semi-desert plains of the Lower Punjab and Rajputana; it is found on all sides of this area, in Sind and Baluchistan, the North-west

The Painted Sandgrouse (Pterocles indicus) is resident in low but not in the Indo-Gangetic plain, the Chota Nagpur area or the Western Coast. It has no pin-tail feathers and is closely barred on

to water to drink, all the flocks in the neighbourhood using the

same place; after drinking they fly to the feeding ground which is bare open country with an occasional strangling bush or two, Ising fallow after a rabbi crop; here they find grains of that crop and the seeds of weeds. While feeding they keep close together and move with much deliberation, looking in the distance rather like a collection of mud-turtles. They remain, if not disturbed, on this ground till the evening, when a proportion again fly to drink and then they collect at their "jugging" places, which are usually in the young kharif crops and which may be recognised by the abundance of footmarks and droppings. The call is a clucking sound uttered on the wing, which is difficult to describe.

In favourable localities in the line of passage the migration of this species is almost as marked as that of the Cranes; innumerable flocks pass every morning following the same course.

Except at the drinking places this Sandgrouse is very difficult to shoot. At the approach of man it squats, and owing to its colour is very hard to distinguish on the sandy ground except that the dark throat-patch of the males often catches the eye. By circling nearly very carefully in an ever-decreasing circle it is often possible to age within shot before the birds rise, but they are, as a rule, every and suspicious, and do not allow a close approach. They are, in addition, one of the toughest game birds that I know, with the "compact hard plumage and thick skin, and are very difficult to bring down unless shot pronerly in the head.

This species does not breed in India, but in its breeding range from Afghanistan and Baluchistan westwards the eggs are laid in May and June. The nest is a hollow scraped in open ground.

The clutch consists of two or three eggs. They are elliptical in shape, the texture is smooth and close with a marked gloss, and the shell is decidedly brittle.

In colour the ground is dull and pale, varying from cream to buff or greenish-grey; the markings consist of indefinite smudges, blotches and spots of brown of various shades, with secondary markings of lavender and purplish-grey.

In size they average about 1.86 by 1.27 inches.

THE COMMON SANDGROUSE

PTEROCLES EXUSTUS Temminck (Plate xx, Fig. 1, opposite page 480)

Description.—Length 13 inches, including 2 inches for central tail-feathers. Male: Upper plumage isabelline-buff, feathers of the shoulders and wings tipped with paler buff or dark reddish-brown;

forchead, sides of the head, chin and throat dull oderaccoms-buff; the longer flight-feathers blackish-brown, some of the inner ones obliquely typed with white; central tail-feathers brown with long black tips, the remainder darker brown with white tips; breast buff with a slightly rufous tinge, crossed by a black groger slightly edged in front with white; the buff shades into the dark brown flashs and abdomes with long the state of the state of the state of the state of the wing lining dark brown; legs and under tail-coverts very pale buff.

Female: Buff throughout, the crown and entire neck spotted with black; remainder of upper parts barred with black; remainder of upper parts barred with black, except for a patch on the wing, some feathers having yellowish-buff ends tipped with brown; the longer flight-feathers dark brown, some of the inner one sobliquely tipped with white; chin and throat, sides of the head and a line over the eye unspotted yellowish-buff; upper breast spotted with dark brown, a rather broken blackish gorget followed by a broad band of pale buff; abdomen barred dark brown and rutous, darkest in the centre; wing liming brown; legs and under tail-coverts buff.

Iris dark brown; eyelids yellow; bill and feet slaty-plumbeous.

The two central tail-feathers are elongated and pointed; tarsus

Field Identification.—The common small Sandgrouse of the plains the long pointed central tail-feathers. The male is sandy-buff with a black gorget and blackish-brown belly; the female buff barred with black, a gorget, and the belly barred with brown and rufous; distinguish on the wing by the dark unders surface and dark wing lining.

Distribution.—The Common Sandgrouse is a widely spread species, resident in portions of Africa, in Pulsatine, and Arabia, and in the Indian Peninsula. It is divided into several sub-species, but their distinctness is doubtful. The Indian race, P. e. elliost, is found throughout the plains of Indian with the exception of the Bombay and Malabar coastland, the forest regions E. of 80 E. long, and December 1. is a seident species.

The very similar Spotted Sandgrouse (Pterocles senegallus), which, however, lacks the gorget markings in both sexes, is resident and fairly common in Sind and the neighbouring semi-desert areas. Another pin-tailed species, the large Pin-tailed Sandgrouse (Pterocles delatata), is found mostly in the Indus drainage. It is cauliy recognised by the landsome scale-marking of the wings and the white belly.

Habits, etc.—This familiar game-bird avoides rocks and hills,

Hotell, etc., and the state of the defer and hare portion to the desire and hare portion to the desire and hare portion to the desire and to the desire and the desired and the de

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double clucking note. The flight is very swift and straight, though the flocks have a tendency to swing round in the air in a wide circle

The most marked trait in these birds is their habit of flighting to water in the mornings. Their time and place of drinking are very constant, varying according to season from 8 to 10 AM. Just before drinking time large flocks arrive from every quarter so that the saly is full of them. The first arrivals settle out on the open plain some half a mile from the drinking place, and all the other flocks settle near them; after shout fifteen minutes the first bard but less marked drinking flight in the evenings, and in the hot westher they have regular places for dusting which are visited about an hour before sunset.

All Sandgrouse, of course, are incapable of settling anywhere but on the ground. The young of Sandgrouse are said to be watered by the male, who after drinking saturates his lower plumage with water to be sucked off the feathers by the chicks.

The majority of this species lay about April, but eggs may be found in almost every month of the year. The nest is a mere scrape or hollow on the ground, sometimes sheltered by low bushes, tufts of grass or large clods, and very occasionally lined sparsely with a little grass.

The normal clutch consists of three eggs. These are of a very curious shape, long and cylindrical like those of a Nightjar; the texture is fine and smooth and there is generally a fine gloss.

The ground-colour of the eggs is variable, pale stone-colour, greyish or dingy greenish, or light olive-brown. They are thickly spotted, streaked or irregularly blotteded with olive-brown and pale inky-purple of various shades; different eggs vary greatly in the disposal, extent and thickness of their markines.

In size they average about 1.45 by 1.05 inches.

THE COMMON PEAFOWL

Description.—Length, make, to end of fail 40 to 46 inches, to end of full train 5% to 50 inches; from 42 5% inches. Adult male? Feathers of the head short control of the state of the head short control of the state of the head short control of the state of the stat

train bronze-green shot in the centre with coppery-bronze, nearly all the feathers ending in an "eye," which consists of a purplishblack heart-shaped nucleus surrounded by blue within a coppery disk, with an outer rim of alternating green and bronze; tail dark brown; lower plumage dark glossy-green, becoming black under

the tail; thighs buff.

Female: Heard rufous-brown, crest shaped as in the male, the
Female: Heard rufous-brown, crest shaped as in the male, the
Female: Heard rufous-brown, faintly
mottled with paler; wing-quills dark brown; jail dark brown
the (eathers with whitish tips; lower neck metallic-green; lower
plumage buffy-white, inner portion of each breast-feather dark
brown glossed with green; a patch under the tail dark brown.



Fig. 75-Common Peafowl (§ nat. size)

Iris dark brown; naked skin of face livid white; bill and legs horny-brown. Weight, male 9 to 11½ lb., female 6 to 9 lb.

A peculiar fan crest on the crown; enormously lengthened and modified upper tail-coverts form a lengthy train falling over the wedge-shaped tail; under tail-coverts disintegrated and downy; a spur in the male above the hind toe.

Field Identification.—Apart from the huge size and resplendent plumage of the male, the peculiar fan-shaped crest is sufficient to seconds both sexes from any other species.

Distribution.—Confined as a wild bird to India and Ceylon. It is found almost throughout India from the Valley of the India eastwards except in the greater part of the Sunderbunds of Eastern Bengal. In Siin dand the neighbouring desert areas it was apparently introduced by human agency. Along the Outer Himalayasi t is found up to 2000 and locally up to 5000 feet, or even 6000 feet. In the

southern ranges it occurs up to 6000 feet. A purely resident

Habits, etc.—In its truly wild state the Peafowl is a denizen of fairly thick jungle, especially when it is intersected by small rives and streams and varied with low ranges of hills. In such jungles the birds live in small parties, resting and lazily feeding in the undergrowth by day, roosting on the trees at night, and, when surroundings permit, moving out into cultivation for the moning and evening feed. They are very wary and shy, running swifty on foot amongst the bushes when approached, and being persuaded to fly with the utmost difficulty; though once on the wing they can travel fast with regular, comparatively slow flaps, sustained and without the glidding common to most game-birds.

Yet, for all its shyness, the Peafowl knows when to trust man, In the drier regions of the north-west where it has been introduced, or in those areas where sentiment and religion combined provide in indigenous bird with complete protection, as the emblem of the Lord Krishna, it becomes very numerous and trusting, living in regular droves on the outskirts of villages and feeding about the fields with an almost complete disregard of passer-by; while it

sleeps by night on trees amongst the houses.

The food consists chiefly of vegetable matter and grain and seeds, and it often decours the cultivated kinds in quantities sufficient to render it a destructive missance; insees and its report and all sizes of the missance is necessary and the missance and catent. The call is a loud trumpet-like scream like the misso of a gigatite cat; in Northern India this is said to form the syllables mid-sof "come rain," and the bird is credited with being especially noisy at the approach of rain.

The immature birds are good eating. The old birds, however, should be recommended to those who by choice pick out the oldest and toughest of their fowls for eating. As a general rule the Parlow should be left alone by sportunen; there is little interest in shooting them, and when killed they are only worth making into soup; to kill them is almost certain to offend local prejudice, even if it does not lead to serious trouble; while, to my mind at least, the cock is such a wonderful and beautiful creature that it is a pity to sacrifice him merely to the passing teleasure of the abox.

The domestication of the Peafowl is of very ancient date, as the gorgous plumage of the males and their strutting, pompous pride have a very special appeal to Oriental minds. The introduction of the bird to Europe and the principal control of the bird to Europe and the different part of the Grander the Great. During the Middle Ages no formal hampet was considered complete without a Feacock served up in a lordly dish, garnished with its head and train. The first sylubble of the bird's armae comes through

the Anglo-Saxon Pawe, from the Latin Pawo, and this in its turn comes through Greek and Persian onomatopæic words from the

loud call.

'The Peacock is polygamous, his harem consisting of from two to
five hens, and he takes no share in family duties. The heraldic term of
a "Peacock in its Tride." aptly expresses the male's display in which
the train is expanded into a gorgeous fan round the posing bird.

the train is expanded into a goige-order. The breeding season is prolonged, from January to October, the actual months varying locally and being dependent on the rains; the middle of June to the end of August may be considered the

usual period.

The nest is a hollow scraped in the ground, more or less filled with leaves, small sticks, grass and other debris. Occasional nests may be found on buildings or in hollows amongst the branches of large

trees, while exceptionally the eggs are laid in the old nests of Vultures.

The usual clutch consists of three to five eggs, but as many as eight may be found. The eggs are broad blunt ovals, with very thick and glossy skells closely pitted all over with minute pores. The colour varies from very pale fawn to warm buff, and some eggs.

are freekled with darker buff or pale reddish-brown.

The eggs vary from 2.45 to 3.0 inches in length, and 1.42 to 2.2 inches in breadth.

THE GREY JUNGLE-FOWL

GALLUS SONNERATI TEHRITICA

Description.—Length, male 24 to 32 inches, including tail 12 to 18 inches; fermale 18 inches. Adult male: Crown and neck to 18 inches. Adult male: Crown and neck makes backshis, each feather with a white shaft and ending in a white spot followed by a glossy brownish-yellow 901, these spot followed by a glossy brownish-yellow 901, these spot of the webs; remainder of body plumage blackship, the feathers with wite shafts and agree dage, the hackes at the sides of the rump and some of the upper tail-coverts ending in the yellow wars-like spots and edged with ferruginous-brown; wings black, all the feathers with pale shafts and edges, the median coverts ending in long lancolate brownish-orange was-like spots fringed at the end with chestnut; tail and its coverts black, bighly glossed with purple, green

Female: Crown and neck speckled brown with pale shafts and edges to the feathers; upper plumage finely mottled blackish-brown and buff, the feathers over the shoulders with fine whitish shaft-lines; quills of the wings and tail dark brown, mottled on their exposed edges; chin and throat white; remainder of lower plumage white, the feathers with black borders which gradually disappear from the breast downwards.

Iris orange-red or yellowish-red; bill horny-brown; comb, face and wattles crimson; legs horny-yellow, claws black. Weight, male I lb. 10 oz. to 2 lb. 8 oz., female I lb. 9 oz. to 1 lb. 12 oz.

The male has the throat and sides of the face naked, the skin being produced into a pendulous wattle on each side of the throat, and a flesby comb on the top of the head; the female has traces of a comb and a bare patch of skin round the eye. The tail of fourten feathers is laterally compressed, and in the male consider-



Fig. 76-Grey Jungle-Fowl -(4 nat, size)

ably graduated, lengthened and curled. The male has a long sharp spur above the hind toe.

Field Identification.—Easily recognised as a Jungle-Fowl by the strong resemblance of both sexes to domestic fowls. The greystreaked plumage of the male, combined with the glossy black tail, and the curious waxen spots of the lackles of the neck and rump, and the black and white markings of the under surface of the female at once indicate the species.

Distribution.—A purely Indian species, occurring throughout Southern and Western India in hilly and jungly ground. A line from Baroda to Mount Aboo and through Jubbulpore to the mouth of the Godwari roughly indicates the northern boundary of its range and it extends almost to Cape Comorin. It is a resident species and occurs up to the summis of the hills.

Habiti, etc. — The Grey Jungle-Food is by preference an inhabitiant of the implect that clother the lower slopes and bases of the various hill ranges, particularly when these consist of moderately thin bamboo jungle. It is an exceedingly shy bird and remains during the day in cover, only coming out in the mornings and evenings to feed, and even then running back into cover at the least alarm. It is very punctual and regular in its habits, feeding daily at the same places and times. It roots in trees and usually files up into them when pursued by a dog. It is met with solitary or in pairs, and although numbers live in suitable jungles or collect to an abundant food-supply, they do not as a rule associate in parties. The food consists of grain and seeds, insects, grubs, small fruits, and

The male usually carries the tail low, and when running it moves with a shame-faced crouching gait, the neck outstretched, the tail almost to the ground.

From October to May the males are in full plumage and then crow freely, mostly in the mornings and evenings. The crow is very peculiar, head-hayu-hay-huch, ending with a low double syllable layhyulan, hyulan, repeated slowly and softly, and only audible of short distance. When disturbed by a dog they have a curious cackle, huch-huch.

The breeding season is very irregular, depending on rain and food-supply. Most nests may be found from October to November or from February to May. The nest consists of a slight collection of sticks, leaves, bamboo spathes and other rubbish placed in a hollow

The normal clutch consists of four to seven eggs, though as many as thirteen have been recorded. The egg greatly resembles that of the domestic fowls, both in colour and shape; the surface is fine, smooth and glossy. The colour varies from very pale cream to rich warm buff, generally unmarked but sometimes finely freckled, and occasionally even aported and speckled with various shades or

The average size is 1.80 by 1.40 inches.

HE RED HINGLE-FOWL

GALLUS GALLUS (Linnæus)

Description.—Length, male 26 to 28 inches, including tail 11 to 13 inches; female 17 inches. Adult male: Crown and neck hackles golden-brown to orange-red, passing into golden-yellow, generally with lanceolate dark brown shaft - streaks; upper back,

smaller feathers of the wing, save for a central bar shiny chestnut-red, and inner edge of the wing black, glossed with green and purple; wine-omila blackish-brown, the inner feathers broadly edged with



Fig. 77-Red Jungle-Fowl († nat. size)

deep cinnamon; rump deep chestnut-red merging into golden-red and orange, all the feathers very shiny and with dark green bases; tail and its coverts black glossed with green and purple; lower parts black with a slight greenish gloss. Female: Top of head and a collar round the throat dark rufous chesturi; back and sides of the neck brownish-bluck, mottled with brown, each feather elongated, pointed and edged with straw-yellow; upper parts finely vermiculated black and brown, with yellowishwhite abafts; wing- and tail-quills dark brown, the exposed parts of all but the outermost wing-quills finely vermiculated with pale brown; lower parts light rufous brown, more rufous on the breast, more brown towards the tail, with pale shaft-stripes.

Iris light red to orange-red; comb and wattles crimson, sides of face paler; bill dark brown, reddish towards the base in males, horny-brown in females; legs slaty-plumbeous. Weight I lb. 2 oz. to I lb. 10 oz.

Characters as in the Grey Jungle-Fowl, with the addition of a

second small white wattle by each ear.

Field Identification.—Indistinguishable in appearance, sex for sex,
from those types of domestic fowls known as "Old English Game"

from those types of domestic fowls known as "Old English Game" or modern "Game-bantam." The orange-red and yellow backles of the neck and rump and the uniform black under parts of the male, the uniform brown under parts and yellow neck markings of the founds indicate the species.

Ditribution—Widely distributed in India, Burma, Yunnan, Sim Indo-China and the Malay Peniosula to Sumatra. The Indian race, G. b. marghi, is found along the Outer Himalayas from the Jhelum River foot-hills to Assam, in Bengal, Orissa, the Northern Circars and the Eastern Central Provinces down to the Godwart; also near Pachmarhi. It is resident and occurs up to about goos feet in the Himalayas, though in greatest numbers below goos feet. The distribution of this Jungle-Fowt in practically the same as that of the Swamp-Deer and the Sal-Tree.

Habit, et.—The Red Jungle-Fowl is easentially a forest bird, but it occurs in both tree forest and in the jungles of thick sensition and low trees and it certainly prefers the neighbourhood of cultivation and country round the base of halis. The birds feed in the cultivation in the early morning and late afternoon but retire by day to their forest haunts, where also they skeep in the trees a tight. The calls of both sexes resemble those of domestic varieties but the cock's crow is shorter, especially the concluding note. The guit and carringe of the cock is as described under the last species.

The Red Jungle-Fowl is the species which is evidently to be regarded as the ancestor of all domesticated poultry. The full story of its domestication is lost in the mists of time, but it is commonly believed that this took place in the Indo-Burnese area and it is the tradition of the Chinese that they received their poultry from the West about 1400 Rec. On the other hand, from the evidence of seak the fowl was evidently known to the civilisation that

flourished in the Indus Valley about 2700-2500 B.C., and though it is commonly said not to have been figured in ancient Egyptian monuments, this is incorrect. There is a definite drawing of a coek's head in Rekhmara's tomb at Thebes (circ. 1500 B.C.) and Mr Howard Carter's discoveries at Tutankhamen's tomb (circ. 1400 B.C.) include a rough drawing of a cock on a flake of limestone in the talus slope below the tomb. It is also figured on Babylonian cylinders between the sixth and seventh centuries B.C., while the Greek tradition evidently was that it reached Greece by way of Persia as Aristophanes calls it the Persian bird. The cock is represented on the Lycian marbles (circa 600 B.C.) in the British Museum. Curiously enough the bird is not mentioned in the Old Testament nor directly by Homer, though one of his heroes

is called Alektor, the Greek name for a cock The breeding season proper is from the end of March to May, but some nests may be found from January to October. The nest is made on the ground in any dense thicket and is composed of dry leaves, grass and stems, while there is a good deal of variation in the amount of care expended on its construction. The cocks appear to

be monogamous.

The normal clutch consists of five or six eggs and probably never exceeds nine. Four eggs are sometimes found.

The eggs vary a good deal in size and shape, but typically are miniature hens' eggs. The shell is fine and smooth with a fair amount of gloss, though duller and coarser specimens with visible pores occur. They vary in colour from an almost pure white to a deep creamy-buff.

The egg measures about 1.78 by 1.36 inches.

THE COMMON KALIJ PHEASANT

GENNZEUS LEUCOMELANUS (Latham)

Description,-Length, male 23 to 26 inches, including tail 11 inches, female 20 inches. Adult male: A long loose crest, and the upper plumage black glossed with purplish steel-blue, the feathers with whitish edges, these edges growing more marked on the rump; wing- and tail-feathers blackish-brown largely glossed with green; lower plumage dark brown merging into sullied white on the breast where the feathers are lanceolated; many feathers have white shafts especially on the upper back and breast,

Female: Upper plumage, including crest, dark reddish-brown, the feathers very faintly vermiculated with black, and with their shafts and edges whitish; lower plumage similar but paler in tint, the chin, throat and centre of the abdomen becoming whitish; all but the central pair of tail-feathers black glossed with greenish.

Iris orange-brown, a bare fleshy patch round the eye scarlet; bill pale greenish-horn; legs livid fleshy with a purplish or brownish tinge. Weight, males 2 lb. to 2 lb. 12 oz., females 1 lb. 4 oz. to

2 lb. 4 oz. A heavily-built, powerful bird, with short-rounded wings; the tail is a modification of that of the Jungle-Fowls, being long, compressed



Fig. 78-Common Kalij Pheasant († nat. size)

and graduated, the feathers pointed and slightly curved. The male

Field Identification.-Himalayan form. Distinguish from all other Indian Pheasants by the conjunction of the long hair-like crest with the compressed curved and pointed tail. The glossy black and white plumage of the males is also very distinctive.

Distribution.- The genus Gennæus includes the Kalij or Silver Pheasants which have a wide distribution in the Oriental region and afford, particularly in Burma, some perplexing problems in identificawith one species, which is found as a resident throughout the

Himalayas from Hazara to Bhutan at elevations from 1000 to 10,000 feet, being most common in a low zone from 2000 to 6000 feet. In this range there are three races, differing chiefly in the amount of white on the males. From Hazara to the western boundary of Nepal we have the whitest form, G. I. hamiltonii, in which the crest is white, and the white feather edges on the rump are very broad and conspicuous; in Nepal there is the typical race with the crest black and the white edges to the rump moderate in breadth; in Sikkim and Bhutan, G. l. melanotus has the crest black, and entirely lacks the white edges to the feathers of the upper plumage.

The well-known Koklas Pheasant (Pucrasia macrolopha), common in the Western Himalayas from Western Nepal into Afghanistan, is remarkable for its wedge-shaped tail and the unusual combination of a long crest with still longer side tufts. The male is rich chestnut below with the upper parts grey with black shaft-stripes, the head

being largely black glossed with green.

Habits, etc.-This is the best-known and easiest to procure of all the Himalayan Pheasants, as it inhabits a lower zone than the others and is less shy and retiring in its habits. It is typically a bird of heavy undergrowth on the sides of ravines, though it is essential that this should be in or near forest and that there should be streams in the near vicinity. Whenever possible, it likes to move out to feed on open ground in the mornings and evenings, and it is therefore, when suitable conditions are present, often most numerous in the near vicinity of villages with their attendant cultivation. A few may always be found on the outskirts of the hill stations even during the crowded summer months. It lives and feeds on the ground, flying up into trees to roost and also often to avoid disturbance. The food consists of grain, seeds, berries and tender shoots, and of a variety of insects, worms, larvæ and similar objects.

Both sexes grunt and cluck in a soft undertone as they feed on the ground, and when flushed they give vent to a series of guinea-piglike squeaks and chuckles that hardly seem to proceed from a bird. The males are very pugnacious and fight freely amongst themselves. There is a courting display in which the male standing on the ground draws himself up to his full height and makes a peculiar drumming whirring noise by rapidly vibrating his extended wings. Several birds

are generally found together.

The breeding season is from the end of March to the end of June. The nest is a collection of leaves, grass and forest rubbish in a hollow scraped beneath the shelter of a stone or low bush or tuft of grass.

The number of eggs varies from four to fourteen, but the normal clutch consists of seven to nine eggs. They very closely resemble those of the domestic fowl, being smooth and rather glossy with a fine

close grain. The colour varies from pale cream to rich reddish-buff, without markings. The surface is sometimes pitted with minute pores

The average size is 1-95 by 1-42 inches.

THE MONAL

Description.-Length, male 28 inches, female 25 inches. Head and crest brilliant metallic-green; sides and back of the neck and wing-coverts metallic-purple, gradually becoming metallic-green towards the bend of the wing; wing-quills black; rump white; upper tail-coverts brilliant metallic-green; tail cinnamon-chestnut; lower parts black, washed on the chin and throat with metallic-green.

Female: Upper plumage dark brown, the feathers with narrow edges and broad central stripes of buff; wing-quills dark brown, mottled and lightly barred with rufous buff; rump pale buff-brown, the feathers with dark brown crescentic bars which on the tail-coverts almost cover the buff, the tail-coverts ending in a line of white; tail barred, with rufous-buff and dark brown, the tips white; chin and throat white; breast pale buffy-white the feathers pointed and lined with dark brown; remainder of lower parts pale buffy-white, the edges of the feathers freckled with dark brown, becoming stronger

The young male resembles the female, but has a black patch on

Iris brown; naked eye-patch blue; bill dark horny-brown; legs yellowish or brownish-green, claws dark horny-brown. Weight,

Bill stout and slightly curved; wings and tail slightly rounded; the male has a marked tuft of long spatulate feathers on the top of the head, the most brilliantly metalled plumage imaginable and heavy blunt spurs on the legs.

Field Identification.-Himalayas only, in steep hill-side forests. Male quite unlike any other bird of its size. Most brilliant metallic colouring, which in distance looks blackish with white rump and chestnut tail. Female variegated blackish-brown and buff. Peculiar

Distribution.-Safed Koh; Himalayas from Afghanistan and Chitral to Bhutan. Breeds in the Western Himalayas usually between 9000 and 11,000 feet and is found in winter at all elevations from tree-level down to 6000 feet. In Sikkim the summer range is said to be from 10,000 to 15,000 feet. A resident species with no races. The Cheer Pheasant (Catreus veallichii) is another well-known game-bird of the Himalayas at moderate elevations from Khatmandu westwards. It is a plain-looking buff and grey and black barde bird with a bare red eye-patch and a long narrow pointed tail, broadly barred. Less well known but far more brilliant with the scarlet plumage and white spotting are the Crimson Horned Pheasant (Tragophas uslaya) found from Carlwal to Assam and the Western Horned Pheasant (Tragophas melanocephala) found from Garlwal to Assam and the western thoreach and the control of the control of

Habits, etc.—This magnificent Pheasant is still common in the Himalayas where it is found in the higher forest-chal mullast, preferably those where forests of oaks or pines or thickets of rhotodocndron are broken up by patches of grassy alope, and rocky crags and precipies discourage the intrusions of man. In such nullabs the Monal is often found in large numbers, not in flocks but in two and threes, feeding and wandering under the trees and out on the suntil abope. Their feature flower is a hard knobbly tuberous root which is common on the Alpine pastures, and for it they did not the suntil about the significant control of the significant control of the significant control of the significant with the significant control of the significant

In the breeding season, which is in May and June, the male displays up the hens. On the ground he displays with the tail spread high over the back and slightly jerked, much after the fashion of the Peacock. He has also an aerial display in which he files straight into the air from a step hill-side, moving slowly with the wings held high above the line of the back, the tail being partly served and the white mum ever commercious.

The nest is a hollow scratched in the ground by the female under the shelter of a rock, the bole of a tree or some tuft of herbage. It

is usually lined with dry leaves, moss and similar debris.

The clutch varies from two to six eggs, but is usually composed of four or five evos.

The egg is a long oval, a good deal compressed trovards the smaller end. The shell is fine and compact with a faint gloss. The ground -colour is buffy-white, spotted, fredded and occasionally blotheds with deep reddish-brown. There is a good deal of variation in the amount of marking and it is usually most conspicuous about the middle of the egg.

The egg measures about 2.55 by 1.78 inches.



r. Little Brown Dove. 2. Red Turtle-Dove. 3. Rain-Quail. 4. In Courser. 5. White-breasted Waterhen. (All about 1 nat. size.)

[Face p. 408

THE RED SPUR-FOWL

ALLOPERDIX SPADICEA (Gmelin)

Description.—Longth 1st inches. Male: Top of the head dark brown shading paler and greyer on the forehead, sides of the heads and all round the neck; upper plumage light chestrut, the feathers of the upper back margined with pale greyish-brown, the remainder finely verniculated with black and bull; wing-pullls dark brown; tail blackish-brown, the central pair of reithers and the outer margins of the next two or three pairs like the lower back; chin whitish; breast and upper abdomen chestrut, the feathers margined with pale greyishbrown; lower abdomen and thighs brown; a patch under the tail rufous-brown remirculated with blacwn; a

Female: Forchead sandy-brown, becoming dark brown on the crown, nape and neck; upper plumage sandy or plac rafous-brown, each feather with two black bars, the black becoming less and the rufous more pronunced towards the tail; wing-quills dark brown; tail blackish, the central feathers with mottled buff bars that disappear on the outer feathers; chin and thoust whitish; next olive-brown, the feathers becoming rufous in the centre and tipped with black; breats and flanks bright ferruginous with sarrow black tips; remainder of lower plumage brown, mottled with black and rufous under the tail. The amount of black on the lower plumage

Iris dull yellow to brown; a bare patch round the eye red; bill horny-brown reddish at the base; legs brownish-red or red. Weight 8 to 13 oz.

Wings short and rounded; tail rather long and considerably rounded. There are spurs on the legs in both sexes, irregular in number and often different on both legs, up to four on one leg in the male and two in the female.

Field Identification.—Male uniform chestnut in appearance, the female light brown pencilled with black. Both sexes suggest a domestic hen-bantam with a longish tail held like a Partridge. A bird of thick lungle pranaghals for its source.

Distribution.—The Spur-Fowls are a small genus of three species confined solely to India and Ceylon. The Red Spur-Fowl is confined to India and is divided into three races. The typical race is found in the terai in Oude, and again scattered about throughout the whole Peninsula of India south of the great Indo-Gangetic alluvial plain, wherever there are broken hills covered with forests or bamboo jungle. It extends as far south as the Palis Illus. Frovided that the country is of the reconsistent

type it is found at any elevation from sea-level up to 5000 feet and occasionally higher to 7500 feet. In Travancore it is replaced by the richly-coloured G. s. stewarti, which extends up to about 3000 feet. In the Aravalli Hills and Udaipur there is a pale race known as G. s. caurina. All races are strictly resident.

The Painted Spur-Fowl (G. lunulata), which is also found in Peninsular India, may easily be distinguished by the black and white spotting of the plumage of the male, while the female is a plain brown bird with a chestnut face.

Habits, etc.—The Red Spur-Fowls are birds of broken hilly country and dense cover, especially affecting bamboo jungle and well-wooded nullahs close to water. In such localities they live solitary or in pairs, though the young birds remain in company with their parents for some time. They live and feed on the ground in the thick cover that they affect, and are made to take wing with the utmost difficulty. preferring whenever possible to escape on foot, running at great speed and being adept at dodging from cover to cover. When forced to fly they rise with a great fluster and flapping of wings, but their speed is not great, for a glide follows every few beats of the wings and they soon drop back into cover. They rise with a loud cackling noise resembling that of a domestic hen and the crow of the cock is somewhat similar. At night they always roost on trees, and often take refuge in them by day when pursued by dogs. They visit cultivation and open ground more rarely than the Pheasants and

The food consists chiefly of grain and seeds of all kinds, and the different jungle fruits and berries; quantities of insects and larvæ

are also caten. The flesh is very good for the table.

The usual breeding season is in February and March in Travancore, and from February to June in the case of the other races. There is no real nest, the eggs being laid in a hollow or on the bare ground amongst dry grass and leaves. The site chosen is generally in fairly thick scrub or forest, and there is a decided preference for bamboo jungle with thick undergrowth.

The normal clutch consists of three eggs, but two to five may also be found.

The eggs are miniature fowl's eggs in appearance, rather narrow and pointed in shape; the shell is stout and the texture fine and smooth with a slight gloss. The colour varies from creamy white to warm pinkish-buff, without markings.

The eggs average 1.67 by 1.28 inches in size,

THE COMMON QUAIL

COTURNIX COTURNIX (Linnæus)

Description.-Length 8 inches. Male: Top of the head black barred with brown, a pale buff line down the centre of the crown and a broader one above each eye; sides of the head white and brown, ear-coverts and a streak from the gape dark brown; upper outer web with rufous except on the first primary which has the outer web unmarked whitish; tail-feathers blackish-brown with pale shaft-streaks and transverse bars; throat and fore - neck whitish, a broad central band and a narrow cross-stripe on each side curving up to the ear-coverts making a blackish anchor mark; a broken gorget of blackish-brown spots; breast rufous-buff with pale shaft-

The female wants the black anchor mark on the throat and has the breast usually spotted with black.

Iris vellow-brown; bill horny-brown; legs pale fleshy-brown or vellow. Weight 31 to 4 oz. The shape is plump and rounded and the legs lack the spurs

usual among game-birds.

Field Identification.-A miniature Partridge in appearance with a striped head and rather sandy coloration streaked with white; in the male a distinctive black anchor mark on the throat. Found often in considerable numbers in cereal crops and grass. Very

Distribution.-The Common Quail is a bird of very wide distribution in the Old World, being found almost throughout Europe and Africa and in the greater part of Asia. It is a highly migratory species, and the majority of the birds that visit India are winter

As a breeding species the Quail is found in some numbers from the extreme north-west, including Gilgit, Kashmir, the North-west to the Deccan, though the Punjab and United Provinces are the districts in which the bird breeds most commonly.

they commence to gather and move in a north-westerly direction again, passing through the extreme north-west in enormous numbers in March and April. The spring migration is always more noticeable than that in autumn, as the birds collect into larger flocks and the period of passage is shorter and more concentrated.

Habits, etc.-The Common or Grey Quail is extremely well known in India as a sporting bird for the gun, a favourite delicaev for the table, and amongst Indians as a cage-bird for fighting and

betting purposes.

In the greater part of India, Quail are regarded by sportsmen merely in the light of an addition to a mixed bag. In the northwest, however, on the spring migration, they are so numerous as to



Fig. 79-Wings of (A) Common Quail; (B) Rain-Quail (Nat. size)

he the sole object of a day's sport. At this time they are chiefly found in the fields of growing corn, and it is the custom to collect the birds from far and wide into one particular area by means of call birds, set in cages on a long pole. The cornfields are then walked with a line of beaters. The Quail rise not in coveys but singly, though they are often so numerous that eight or ten birds may be on the wing at a given moment and very large bags are obtained; fifty to a hundred couple in a day's shooting is nothing unusual for two or three guns. The birds rise very suddenly and fly at a height of 5 to 15 feet from the ground, but although the flight is fast it is very straight and the birds are in consequence easy to hit.

Quail are netted alive in enormous numbers, and it is the practice in many establishments to buy up two or three hundred and fat them

in underground pits to be killed and eaten as required. The food of the Israelites in the wilderness (Exod, xvi. 13) is believed to have been the Quail.

The food chiefly consists of grain and seeds, but insects and their larvæ are also eaten. All food is taken from the ground, and the

The usual call of the Quail is a very liquid wet-mi-lips, even perhaps better represented by the Kashgari name of Watwalak, and it is uttered both by day and night. This is the call of the male, but

there are other softer calls used by both sexes. A Quail breeds, as it lives, in open country, in cultivation and

scraped in the ground and lined scantily with grass and a few leaves. The breeding season in India is chiefly from March to May, but eggs have been found as late as September. The number of eggs a good deal pointed towards the small end; the texture is hard and strong with a good deal of gloss. The ground-colour is a clear degrees with deep reddish-brown or bluish-black.

In size they average about 1.18 by o.go inches.

THE RAIN-QUAIL

the outer webs of the primary quills. The dark marks on the face

Iris brown; bill, male dusky blackish, female brownish-horn;

Quail in the field except by the call and smaller size, unless the black breast is visible. In the hand both sexes are at once distinguished by the primary flight-feathers which are plain on the outer webs, whereas the Common Quail has all the primaries except the first

Distribution.—The Black-breasted or Rain Quail is peculiar to the Indian Empire. It is found throughout practically the whole of India from the extreme north-west and the extreme north-east down

to Ceylon; in the three corners of this triangle, however, it is undoubtedly very scarce and recorded only from certain localities. In the Himalayas and other hill ranges it is found occasionally up to 6000 or 8000 feet

The status of this Quail is not very clear; its name is due to the fact that in large areas, especially in the north-west, it merely appears during the rains and leaves after breeding; in other parts

it appears to be largely a resident.

The tiny Blue-breasted Quail (Excalfactoria chinensis) is locally distributed in India east of a line from Bombay to Simla. The female in coloration recalls the Grey Quail. The male is a handsome bird with the lower parts slate-grey and chestnut with conspicuous black and white markings on the throat.

Habits, etc.-Like the Grey Quail, this species is purely a bird of open country, being found in cultivation and grass crops, and often in the close proximity of villages and houses. During the breeding season it is found in pairs, but otherwise is a solitary bird though suitable cover often attracts many individuals to the same ground. In the field it is difficult to distinguish from the Grey Quail, exceptfrom the fact that the call is different, a rapidly repeated and musical whit-whit-whit-whit

The breeding season is in the monsoon from the end of June until October, though the majority of eggs will be found in August or the beginning of September. The nest is a hollow scraped in the ground and lined sparsely with grass and leaves. It is placed amongst standing crops or in thin grass,

The normal clutch consists of about nine eggs, though the number is variable from four to ten or eleven.

The eggs are very variable, though the members of one clutch resemble each other closely. In shape they are broad ovals, rather pointed at the small end, fine and smooth in texture with a fair gloss. The ground-colour varies from faintly yellowish-white to rich brownish-buff; the markings are of three types, a finely and evenly speckled and spotted egg, a boldly blotched and freckled egg, and a marbled egg. These markings may be blackish, purplish, olivebrown or burnt-sienna, but all the markings on one egg are of one colour

The eggs average about 1.10 by 0.84 inches in size.

THE JUNGLE BUSH-QUAIL

PERDICULA ASIATICA (Latham) (Plate xx, Fig. 2, opposite page 408)

Description.-Length 6 inches. Male: Forehead and a stripe over each eye chestnut bordered above with a buff stripe which runs from the beak to the sides of the neck; upper parts brown, the crown mottled with dull chestnut and blackish-brown, the remainder vermiculated with black and marked with buff which tends to be in streaks on the upper back and in bars on the rump; wings brown vermiculated with dark brown, the feathers barred with buff, lightly on the outermost flight-feathers, heavily on the coverts and innermost flight-feathers, the last being also broadly streaked with buff and blotched with black; tail pinkish-brown with black-edged buff crossbars; ear-coverts dark brown; cheeks, chin, and throat chestnut, a broken buff stripe under the eye and car; lower parts white finely banded with black, the white gradually becoming pinkish buff under the tail and the black bands growing wider apart and disappearing.

Female: Whole head and upper neck as in male. Upper parts grevish-brown vermiculated with blackish; wings as in male but more uniform, the buff barring and banding being largely eliminated;

lower parts uniform dull rufous with a vinaceous tint. Iris brown; bill blackish, base blue-grey; legs yellowish-red,

The shape is plump and rounded. The males have a blunt

tubercular spur on the leg. Field Identification.-Miniature Quail found in large coveys which rise suddenly with the impression of a bursting firework, the Brown and buff with chestnut faces and throats, the males with

Distribution.-Peculiar to India and Ceylon. Irregularly dis-

of making exceedingly short flights when disturbed is sedentary

a red race, P. a. vidali, in the Konkan, a brick-red race, P. a. salimalii. in Mysore and a dark race, P. a. ceylonensis, in Ceylon. The typical race of the Deccan is very black-looking. The plumage stages and variations require much study and are hard to understand.

For the beginner the position is complicated by the existence of a second species, the Rock Bush-Quail (Perdicula argoondah), which occupies much of the same distribution as the Jungle Bush-Quail and has its own races. The male differs in having the upper parts more barred, the chestnut of the throat paler in colour and the buff streak above the eye wanting, whilst the female lacks the striking

head markings and has the upper parts vinous-rufous, similar to but darker than the lower parts. There is a certain amount of variation in both forms

The Painted Bush-Quail (Cryptoplectron erythrorhynchum) is a much more richly - coloured species with heavy black and white blotching on the flanks in both sexes. The male has a black face with a conspicuous white bar along the sides of the crown and a large white throat-patch. It is found in the Central Provinces and the ranges of Western and Southern India.

Habits, etc.-The Jungle Bush-Quail may be found in any kind of dry jungle from thin grass and bush scrub in the neighbourhood of cultivation to fairly dense deciduous forest. In such localities it is found in coveys of a dozen birds or more which lead a very united life, feeding very close together on the ground and rising in unison when disturbed. It is always rather a startling event to flush one of these coveys. They rise unexpectedly close to one's feet with a sudden chirp and whir, rather like a firework exploding, and scatter in all directions, flying fast for a short distance and then dropping into cover as suddenly as they rose. In a few minutes the scattered birds start to call tiri-tiri-tiri and running in the grass are soon reunited. The food consists of seeds and berries and small insects, grasshoppers, and the like.

The breeding season is rather extended, from about September till April. The nest is a pad of grass and grass roots placed in a hollow in the ground under cover of a small bush or tuft of grass.

The clutch varies from four to seven eggs, five or six being the usual number.

The egg is a regular oval, more or less pointed towards one end. The texture is stout and close with a fair gloss. The colour varies from pure white with a faint tinge of cream to light buff.

The egg measures about 1.0 by 0.83 inches,

Description.-Length 15 inches. Upper parts brownish-olive to ashy, tinged across the shoulders and sometimes also the crown with vinous-red; sides of the crown grey bordered by a buff line over the the eve and round the throat as a gorget; the enclosed area buffywhite with a small black spot on the chin and one each side by the gape; breast ashy slightly tinged with brown and washed on the sides with vinous; remainder of lower plumage buff, darkening towards the tail, the flanks heavily barred with black and chestnut.

Iris brown, yellowish or orange; bill and legs red, claws brown. Weight, male 1 lb. 3 oz. to 1 lb. 11 oz., female 13 to 19 oz.

The male has a short blunt spur above the hind toe.

Field Identification,-Hill ranges bordering North-western India. In parties on open hill-sides. An ashy and buff Partridge at once distinguished by the black loop on the face and throat and by the beautiful barring of the flanks.

Distribution.-Under the name of Greek Partridge this bird has a wide distribution in Europe and in Western and Central Asia, and it has been divided into a number of races. We are concerned only as A. g. koroviakovi. The latter is found in Baluchistan and the Kirthar Range dividing it from Sind and also in the Salt Range.

(Alectoris rufa) of Europe in lacking the fringe of black spots outside the gorget band, and in having two black bands instead of one on the flank feathers.

In the Salt Range and the lower hills west of the Indus the See-See (Ammoperdix griseogularis), a small sandy-coloured Partridge with striking head markings and flank-feathers in the male, is found

make the acquaintance of the noisy Ram-Chukor or Snow Cock on the alpine pastures. Weight 5 to 6 lbs.

Habit, etc.—The Chulor varies a good deal in its choice of ground, provided that it is on a billiadie and free from trees, other than jumper. On the frontier bills it is found on the hortest and bird feeds on stones. In the Himalayas it is equally at home on open grossy hill-sides in the low hot valleys, on stony serece covered with a light growth of barberry bushes, and amongst the smoots at 12,000 or 15,000 feet a diversity of range unusual amongst birds. Incessant dump and heavy rainfall and forest, however, it cannot

Except when actually breeding they are found in coveys; these in their origin are family parties consisting of a pair of old birds with their last brood; but as the winter progresses the coveys pack in



Fig. 80-Chukor (‡ nat. size)

suitable localities so that thirty to fifty bitld, may be found together until the spring breaks them up into pairs. They live and feed on the ground, and when approached usually with for some distance upubli before taking wing. The flight is very survey for the wing-beats followed by a glide, and the coveys aweign each time to the continuous of the hills or across small salleges for some distance before settling. They then generally scatter a little and squat and are found again with difficulty.

The call is a loud ringing chuck-chuckor uttered in various tones. This call and the pugnacious nature of the bird and the ease with which it is tamed render it a favourable cage-bird in North-western Ledia.

The food consists largely of grain and seeds as well as roots, green shoots and leaves and a variety of insects and larvae.

The breeding season is from April to August, early at low altitudes

and late in the higher portions of the bird's rafge. The nest is a hollow scraped in the ground under the shelter of a stone or a tuft of herbage; it is lined with grass, dry leaves and other rubbish, usually somewhat sparsely.

The clutch varies from five to fourteen eggs, but the usual number of eggs is from eight to twelve. The egg is a rather pointed oval of a close and hard texture with a fair amount of gloss. The ground-colour is pale yellowish or greyin-batone, freckled sparsely all over with pale reddish-brown or pinkish-purple, a few of the freckles becoming small blotches.

In size the eggs average 1.68 by 1.25 inches.

THE BLACK PARTRIDGE

Francolinus francolinus (Linnæus)

Description.—Length 13 inches. Male: Top of the head and nape blackish-brown, the feathers broadly degle with pale brown and on the nape with white; sides of the head with the chin and throat black, enclosing a brilliant white path behind the eye; a bright chestnut collar round the neck; upper back black, the feathers edged with rufusu and spotted with white; the middle and lower back to the tail black with narrow white bars, the bars dying away on the outer tail-feathers; wings and their coverts dax brown with subterminal tawny-buff bands and pale edges, the quille also with tawny-buff transverse spots on each web forming imperfect bars; lower plumage from the chestnut collar deep black, the sides of the breast and flanks spotted with white; lower abdomen and thighs pale chestnut stippled with white; growing darker under the tail.

Female: Upper plumage, wings and tail as in the male, but the black is replaced by dark hown, the clearust colar is only represented by a dull chestnut patch on the nage stippeld with brown, and the bars of the lower back and tail are wider; sides of the head clear pale baff; case-covers dark brown; lower parts buff, the chin and throat whitish, the remainder irregularly barred with brown, the bars on the feathers waved or arrow-head shaped and broadest on the flusher; a chestronic author thore that

Iris brown; bill black, in the female dusky brown; legs brownishred, becoming almost orange in the breeding male. Weight, male

The male has a blunt spur on the tarsus; this is sometimes faintly

Field Identification.—A typical Partridge found in thick groundcover, and attracting attention by its extraordinary creaking call. Both sexes have a peculiar scaled type of coloration on the top and sides of the body, while the male is conspicuous for its black under parts, white check and chestruct collar.

Description.—This Francolin was formerly found in Southern Europe, though it is now extinct there. At the present time it extends in various races from Asia Minor through Persia and Mesopotamia and Northern India, excluding Sind and Balkotistan where a paler bird, F., I hornici, occurs along the Himalayas to Western Nepal and in the plains to Behar. Southwards it extends to Decas, Gwalior,



Fig. 81-Black Partridge († nat. size)

Sambalpur, and the Chilka Lake in Orissa. In Central and Eastern Bengal, in Eastern Nepal and in Sikkim is found the much darker Assamese race F. f. melanotus. A resident species. In the Western Himalayas it is found up to 8000 feet, though not commonly above 5000 feet.

The Painted Partiale (Pennedium pictus) is found in the Peninsula south of the range of the Black Partiale and it extends down to about Coimbatore, though it is not found along the Mahine coast or apparently in Mysore. In plumage the Painted Partialge somewhat resembles the Black Partialge but lacks the black on the head, throat and under parts; there is no chestnut collar; the under parts are white with black burs and shaft-stripes giving a chequered appearance. The fengles has no chestnut route, on the page. Holist, etc.—The Black Partridge is one of the favourite gemelistics of Northern India. In the plains it is most abundant in the high grass and tumarisk seruls alternating with other of culturation which are found about the rivers of the great plain. Away from the rivers it is found also in ordinary crops an usual jungle, while the tea gardens of the foot-bills are very suited. It is usually walked up with a few beaters, and rises well, under the analysis of the state of the state

The call-note is well known, a peculiarly loud and grating ery of several syllables which once heard can never be frogetten, with its ring of pride and well-being. Chechines, chick-chines expresses it well, but the Hindustani subhas-ris-bindust O. Omnipotent, why power) is the usual rendering. It is uttered from the ground but often for the purpose the bird perches on an ant-beap or mound, and I have heard of an instance when one was seen on a dead tree some it; feet from the ground though this is unusual.

The food consists of grain, seeds, green shoots, ants, and various

The breeding season is somewhat protracted, from April to October, and some pairs are probably double-brooded, though the majority of eggs will be found in June.

The nest is made in a hollow on the ground in tamarisk or grass jungle, or in crops growing in their vicinity. The hollow is lined with grass leaves and similar materials sometimes very sparsely, sometimes unite thickly.

The number of eggs is variable, from four to ten, but the normal clutch is probably from six to eight. The eggs may be described as miniatures of the eggs of the English Pheasunt. In shape they are sphero-conoidal, stout and fine in texture, and rather glossy. The colour varies from pale stone-colour to deep oflew-brown, sometimes with a greenish tinge. Many eggs are covered with specks of a white calcareous deposit.

In size they average about 1.55 by 1.28 inches.

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THE GREY PARTRIDGE

ANCOLINUS PONDICERIANUS (Gmelin) . (Plate xix. Fig. 5, opposite page 456)

Description.—Length 12s inches. Sexes alike. Top of the head and nape brown; forchead, cheels and a long brown dline over the eye rufuus; car-coverts brown; upper plumage light greyish-brown mixed with chestunt, each feather crossed with a whitish band bordered on both sides with dark brown, and many of the feathers with glistening white shaft-arteast; wing-quills brown mottled and towards the body banded with whitish; outer tail-feathers chestunt throat rufusa-buff defined by a thin blackab brown guy; chin and thoust rufusa-buff defined by a thin blackab brown guy; chin and with the control of lower plumage buff with narrow rather irregular blackab-brown ban which fade out owneds the tail.

Iris brown; bill dusky plumbeous; legs dull red, claws blackish.

The male has a short spur above the hind toe.

Field Identification.— A typical brown-looking Partridge with chestnut in the tail, and a distinct gorget line round the rufous throat. Found in pairs or coveys on fairly open dry ground, and remarkable for its readiness to perch in trees.

Distribution—Found from the Penian Gulf through Southern Perisa, Alghanisa and Ballochisan to India. It is divided into three races distinguished by depth of coloration. The Western race, F. p. mecromani, reaches Ballochisan, but in Sind merges into F. p. interpoints, which extends throughout the whole of Northern India to at line in Bengal roughly through Midnayur and Alginalal. Southward, about Ahmednagar and Belgaum, it is replaced by the typical race. There is a special race, F. p. ceptomate, in Northern Ceylon. It is found up to about 1500 feet in the Himslayan foot-bills and delter nance, and is a strictly evisident savedes.

The Common Hill-Partridge or "Peors," (Athershila torqueld) found throughout the Himalayas is a tree-perching forest Partridge best known by its plaintive call—a very gentle melancholy whistle, poor or phone, uttered singly at short intervals and antilise for some distance. The colour is largely olive-brown variegated with clearnt and black with white posts on the flanks. The male has a chestrut crown and a black and white throat enclosed in a white gorget. The female has the throat rufous assorted with black.

Habits, etc.—The Grey Partridge is not found in heavy forest or on swampy ground. With these exceptions it is found in every type of country, being particularly partial to those tracts where patches of cultivation are surrounded by sandy waste ground and light scrub jungle. It is not so dependent on thick cover as the Black Partridge as it roosts commonly in trees, and also frequently takes refuge in them when disturbed; while many live in hedgerows and thickets on the outskirts of villages.

It associates in small coveys except when breeding. When disturbed the members of a covey do not rise together like the English Partridge, but scatter and run with great speed until tey find thick cover in which to skull, so that each to the pursued separately while the remainder seize the opportunity to pursued separately while the remainder seize the opportunity to escape. When flushed the bird rises with a load whir and files rapidly with quick strong wing - beats, but it does not as a rule

The males are very pugnations, and therefore are easily captured with decoy birds; they are favourite cage-birds with Indians who exteem their loud calls and also keep them for fighting. The call is a peculiar loud shill grift thereon, filter-tor on parts-ets, pate-tes, pate-tes of the presence of the presence of the pate of the pate of with a higher intonation as if the bird were sekting for the keynot of its call; morning and evening the wild ringing notes are amongst the familiar bird sounds of India.

The food consists of grain and seeds of all kinds, as well as of grasshoppers, white ants and other insects.

The ordinary breeding season is from February to June, but a few nests will also be found from September to October. The nest is a scrape in the ground under the shelter of a clod of earth, a tuft of vegetation or a bush. The scrape is sometimes left bare, but is more commonly lined with blades of grass and dry leaves.

The clutch consists of six to nine eggs. The eggs are moderately long ovals, a good deal pointed towards the small end, and the texture is fine, hard and glossy. The colour is unmarked white more or less tinged with pale brownish.

The average size is 1.2 by 1.05 inche

THE LITTLE BUTTON-QUAIL

CURNIX SYLVATICA (Desfontaine

Discription.—Length 5 inches. Sexes alike. Crown mixed black and brown with a buffy-white line down the centre; sides of the head and a line over each eye buffy-white speckled with black; back of the neck rufous, the feathers edged with buff; upper planage characteristic between the control of the plant of the plant

and on the wing-coverts so broadly as to appear entirely yellowishwhite with chestnut black-edged spots; wing-quills brown, the outer feathers edged with buff; lower plumage whitish, the breast buff growing browner on the centre, the sides with black and chestnut spots.

Iris pale yellow; bill plumbeous; legs fleshy-white. Weight.

A plump rounded bird with a soft pointed tail. No hind toes, Field Identification.-A tiny, plump, Quail-like bird with a pale stripe down the crown and a mixture of rufous-black and vellow in the upper plumage. The three toes distinguish the family from true Quails, and the pointed tail at once identifies this species.



Fig. 82-Little Button-Quail (\$ nat. size)

Distribution.- The Little Button-Quail has been chosen to represent the Order of the Hemipodii, a group of small birds that greatly resemble the true Quails in appearance but differ markedly in anatomy and breeding characteristics. All Indian members of the family may at once be recognised as lacking the hind toe. This species has a very wide distribution from the Iberian Peninsula through Africa and Asia to Australia. All Indian birds belong to the same race T. s. dussumier. In the greater part of India it is a resident, but in the north-west its appearance is perhaps sporadic, depending on the rains. It has been found up to 8000 feet in the Outer Himalayas and other ranges, but not commonly.

The male of the Indian Button-Quail (Turnix maculatus) is very like the Little Button-Quail but has a yellow bill and lacks the long pointed tail-feathers. The female is easily distinguished by a broad rufous collar. It occurs throughout most of India. The Bustard-Quail (Turnix suscitator) is larger with the chin, throat and breast cream-coloured barred with black, the female having also a broad black band down the centre of those parts. The belly is brownishbuff. Throughout India and Ceylon except in dense forest and desert.

Habits, etc.—This, the most diminutive game-bird of India, avoids thick forest and hilly country, and lives by preference in cornfields and stretches of grassy plain though it may also be found in any type of low herbage and open scrub jungle. It is a most inveterate little skulker and is flushed with difficulty, rising often close by one's feet. When flushed it flies low over the ground and soon settles again, after which it is very difficult to put up a second time.

The food consists of seeds, tender shoots and insects.

This and the other species of Turnix are chiefly remarkable for their breeding habits. The females are larger than the males, and in most species the more brightly coloured, and they are the dominant factor in all domestic matters. The ordinary call-note is a soft booming sound ventriloquial in character, and usually described as a cross between a coo and a purr. This is uttered by the female and attracts the male, whom she courts, turning and twisting and posturing. The females are very pugnacious and fight amongst themselves fiercely for the possession of the male.

When the eggs are laid the male bird is left to brood them and to rear the chicks. The female deserts her mate and eggs and goes off in search of a fresh male, who in turn is left with a clutch of eggs to incubate. And it is believed that as many clutches of eggs are laid as the female can find husbands to court.

As a result of this system the breeding season is very prolonged and eggs may be found in almost every month of the year. The majority however are laid from June to September.

The nest is a slight pad of grass placed in a natural hollow in the ground where it is usually tucked away amongst the stems of a tuft

The clutch consists of four eggs. The egg is a broad oval with the small end rather sharply pointed. The shell is very stout with is greyish-white, sometimes with a yellowish or reddish tinge; the gathered in a zone round the broad end. In some eggs these bolder

The egg averages about 0.84 by 0.66 inches,

THE WHITE-BREASTED WATERHEN

Description.-Length 12 inches. Sexes alike. A broad mask extending behind the eye to include the fore-neck and breast white: upper plumage generally and sides of the body dark slaty-grey washed with olive; a patch above the base of the tail olive-brown; quills blackish-brown, a fine white line down the edge of the wing : tail dark brown; abdomen buff in the centre darkening all round to pale dull chestnut.

Iris reddish-brown; bill green, the frontal portion red; legs olive-

The legs are long and stout with very long toes.

Field Identification .- A dark-coloured bird with chestnut under parts, and a conspicuous white mask and breast; with ungainly feet,

Distribution.-The White-breasted Waterhen is found almost throughout the Oriental region. Of the races into which it is divided only one, the typical race, is found throughout India, Burma and Ceylon. In India it is found on suitable waters throughout the country with the exception of the Upper Punjab and North-west Frontier Province and the hill ranges. It is mainly resident, but appears also to be locally migratory.

A smaller species, the Ruddy Crake (Amaurornis fuscus), with the upper parts dark olive-brown and the mask and lower parts vinous-chestnut, is common in Kashmir, Bengal and Assam, occurring also in other parts of Northern and South-west India. A stillsmaller bird (length 7 inches) is Baillon's Crake (Porzana pusilla) often found in great numbers on the northern jheels, flying over the water with the long legs hanging. The upper plumage is curiously marked as with smears of white paint.

Habits, etc.-This is one of the commonest water-birds of India, and is found wherever water is surrounded by a certain amount of thick cover, whether in marshes and tanks, or about village cultivation and in gardens. It usually feeds in the open on the land searching for grain, insects, mollusca and the like, and when disturbed is loath to take to flight but runs rapidly into cover. It is rather a quarrelsome species and is inclined to fight a good deal, the birds sparring together like chickens.

This species is probably most remarkable for its calls, being an exceedingly noisy bird. The ordinary note is a sharp metallic sound, much like the noise of pounding with pestle and mortar, and this is

often kept up all night long. In the breeding season the call has thus been described by Eha: "It began with loud harsh roars which might have been elicited from a bear by roasting it slowly over a large fire, then suddenly changed to a clear note repeated like the cooof a dove."

The breeding season is in the rains from June to October. The nest is a saucer of sedges, dried grass, bamboo leaves and twigs. It is built on the water amongst rushes or bushes, or more usually in a raised situation in bushes, clumps of bamboo or trees at varying heights: the vicinity of water is, however, essential, and the bird does not fly up to the nest but climbs up the surrounding vegetation. The eggs are four to eight in number. They are moderately

elongated ovals, rather obtuse at both ends; the texture is hard and fine with a slight gloss. The ground is creamy stone-colour : the pale purple, rather sparsely distributed on the body of the egg, but thick and confluent as a cap on the broad end.

In size they average about 1.57 by 1.18 inches.

THE WATERHEN

Description.-Length 12 inches. Sexes alike. Head and neck blackish-grey, passing into dark slaty-grey on the breast and flanks, the latter with a few broad white stripes; upper plumage brownisholive, the outer tail-feathers black and the wing-quills blackishthe abdomen whitish; under tail-coverts white, a black patch in the

above the joint. The toes are fringed with a membrane and are exceedingly long.

cover. On land looks like a black chicken with large feet; swims with a characteristic bobbing action. Easily identified by the red patch at the base of the beak, the red-gartered green legs, and by the

Distribution. - The Moorhen or Waterhen is very generally distributed in Europe, Africa, Asia, America and the Hawaiian and other islands, and is divided into a number of sub-species, of which only one occurs in India. This, known as G. c. indica, differs from the typical European bird in its slightly smaller size. It is found virtually throughout India both in the plains and in the Himalayae and Nilgiris up to about 6000 feet. A resident species, it is also locally migratory.

The Blue-breasted Banded Rail (Hypotwnidia striata) will be familiar to naturalists in Bengal. The dark brown upper parts with wayy white bars, the ashy-blue breast and the white bars on the

flanks are distinctive. Habits, etc.-In India the Moorhen is found in tanks and marshes, the two chief factors necessary to its presence being

abundance of weeds, rushes and other cover, and a perennial supply of water. Iheels and marshes that dry up during portions of the year only shelter occasional stragglers. On rivers and streams it is seldom found in this country. It is essentially a water-bird, and spends practically all its time swimming about amongst the watergrowth where it feeds largely on vegetable matter, but also on small mollusca and aquatic insects and their larvæ. It swims well, with a characteristic jerky bobbing movement of the head, and when necessary is a good diver, though this accomplishment does not appear to be used except to avoid danger. On land it walks well, with long strides, holding the tail erect so that the white undercoverts are very conspicuous, and when walking the head and tail are incessantly jerked as on the water. It feeds a good deal on land in the cover round water and often wanders right out into the open, running swiftly with head lowered back to the water on any alarm. The call is a loud harsh prruk, with something startling and sudden in the sound which is audible some distance away. The flight is rather heavy and laboured and usually low over the water though the bird is capable of rising into the air and going fairly fast. In flight the neck and legs are held extended. The Moorhen sometimes perches on trees climbing about the branches quite easily.

The breeding season in the plains is from July to September, but in the hills it starts earlier, in May; probably two broods are reared.

The nest is a mass of sedges and other vegetation heaped up to form a hollow for the eggs; it is placed either on the water amongst vegetation or in tufts of grass, or even sometimes a foot or two above the ground. 'According to situation it varies from a sketchy platform to a well-built nest

Six to nine eggs are usually laid, but fourteen have been recorded, The egg is a moderately broad oval, rather compressed towards the smaller end; the shell is compact and firm with little or no gloss, The ground is a pale stone-colour, tinged with pinkish when fresh; the markings consist of spots, speckles and blotches of deep red, reddish-brown and purple, the larger markings often being surrounded by a nimbus.

The eggs measure about 1.62 by 1.21 inches.

Description.-Length 17 inches. Sexes alike. Head pale brownishgrey, tinged with cobalt on the cheeks and throat and passing on the nape into the deep purplish-lilac of the upper plumage, flanks and abdomen; the sides of the wings and the breast light greenish-blue; wing- and tail-feathers black, the exposed portions blue; a white patch under the tail.

Iris deep red; bill and casque deep red mixed with brown; legs pale red, brown at the joints.

The bill is thick and compressed, rather short and high and ter-

minates in a broad frontal shield or casque, square across the crown; legs and toes long and ungainly. Field Identification.-A large blue and purple bird, with ungainly

legs and feet, found in reed-beds in water; cannot be confused with

Distribution.-This species of Purple Coot is found from the Caspian Sea through Persia and Afghanistan to the whole of the Indian Empire; it extends eastwards to Siam. There are two races, of which we are concerned only with the typical form. This is found throughout the plains of India, east of a line through Gurdaspur and Thang in the Punjab to Baluchistan and Sind; it has occurred in Kashmir but is not normally found in the Himalayas. A resident species. The Water-Cock (Gallicrex cinerea) is found in the more swampy

jheels of India, being particularly common in Bengal and Assam. The males are blackish and the females brown and the name comes from the pugnacious habits of the males and the posterior development of the frontal shield on the crown. In the breeding season this

Habits, etc.-The Purple Coot is found wherever there are large swamps and jheels with plenty of rushes, bushes and weeds, and in such places it is usually abundant. It lives in small parties which spend their lives chiefly within the reed-beds, threading their way through the labyrinth of vegetation with remarkable ease, and clinging to the reeds and twigs with the huge feet like gigantic Reed-Warblers; they not infrequently sun themselves and preen their plumage on the broken-down reeds at the water's edge; but otherwise on the whole the bird is comparatively rarely seen unless beaten out of cover. The flight is very weak and laboured, and the bird seldom goes far and escape on foot. Its food is mainly vegetable in character, and it The breeding season in India is in the rains from June to September, but most nests will be found in July and August. The birds in one particular jheel are all very regular in their dates of laying, but colonies in different jheels vary a good deal in this respect.

The nest is a massive heap of sedges and rushes firmly put together with a depression on the top for the eggs. Sometimes it is on the ground at the edge of water; at other times it is placed in or over water amongst rushes, tufts of grass, or in bushes at heights up to 3 feet above the surface of the water.

The number of eggs in the clutch is variable up to ten, and there is often a good deal of difference in the state of incubation of the eggs

in one nes

The egg is a broad and perfect oval, much the same shape as a hen's egg; the texture is firm and compact, but there is very little gloss.

When fresh the ground-colour varies from pale pinkish-stone to pure salmon-pink, but the roay tin fades rapid in fairly fairly thickly spotted, blotched and occasionally streaked with red, and there are numerous secondary markings, pale purple blotches, clouds and spots. The markings are distributed evenly over the surface of the expression of the contraction of the contr

The average size is about 1.90 by 1.39 inches.

THE COMMON COOT

FULICA ATRA Linnæus

Description.—Length 16 inches. Sexes alike. Entire plumage blackish-grey, darker on the head, neck and lower tail-coverts, and paler below; edge of wing whitish.

Iris red; bill and frontal shield bluish-white; legs greenish, joints slatv.

The bill is compressed and rather deep, with a broad frontal shield on the forehead. The tarsus has a membranous fringe behind; the toes are long and fringed with a broad membrane divided into lobes. Field Identification — Found in Reck or the state of the state of

Field Identification.—Found in flocks on open water; the white frontal shield shows up in contrast with the black plumage, and in flight the bird has an ungainly appearance with the heavy feet extending

beyond the short tail.

Distribution.—The Coot is found throughout the greater part of Europe, Northern Africa and Asia, and is replaced by closely-allied forms in Australia and Tasmania. It is unknown in Ceylon, but in India it is found wherever suitable water occurs, and in the Himalayas breeds up to about 600 or 8000 feet. It is a resident species in many. parts of India, but in winter its numbers are greatly augmented by

Habiti, etc.—The Coot is more definitely aquatic than most of the Rail family, and frequents more open water, such as lakes, taskin and slowly-moving rivers. In ordinary jheels it will slways be found out in the open water and not in the reed-bede except when besteding. Its food consists largely of vegetable matter which is taken both on the surface and by diving, but it also eats small fish, insects and modilance, and is not above decouring the eggs and chicks of other aquatic briefs.

In winter Coots collect in large herds; they do not, however, merge their own individuality in the herd or act entirely under mob



Fro. 82-Common Coot (3 nat. size)

impulse, as will a flock of ducks. Disturb the Coots on the water unit you will only affect those birds within the immediate range of your water the remainder do not move automatically in response.

The size of the herds of Coot is often incredibly large, especially on the great lates of Sind where the numbers of the bands may be estimated by the square mile. On the Muschlur Lake, for insurance, the water is covered with separate herds of Coot, each of which keeps more or less to a territory of its own separated by a gay of several hundred yards from the territory of the next herd. The noise of wings and pudding fort when one of these gatherings takes to flight is like the-noise of great waves breaking on a shingle beach. For the Coot rives with difficulty, pattering at fast along the surface of the water; though one on the wing it flies strongly with neck and legs outstretched, and rises well up into the air.

English sportsmen do not generally trouble to shoot the Coor as it sees yo bit, and the flesh is too fishy to be palastable; but native fishermen regard it as a welcome article of diet, and it is netted in bundreds on the Sind lakes. Many are killed with how and arrow or caught by hand. In the latter case they are grabbled from below by a man who wades up to his neck in water with his head concealed in a roughly-stuffed duck.

In Kashmir the Coot breeds in May and June, and in the plains in

July and August.

The nest is a large mass of rushes and flags with a depression on top for the eggs; it is built amongst reeds and other aquatic vegetation either on the water or on the ground at its edge. The clutch varies from six to ten eggs.

The egg is a somewhat broad oval, slightly compressed towards one end; the texture is fine and hard with little gloss. The groundcolour is a pale buffy-stone, closely and evenly stippled all over, and also slightly spotted with black and dark brown.

In size the eggs average about 1.98 by 1.40 inches.

THE COMMON CRANE

GRUS GRUS (Linnæus)

Description.—Length 45 inches. Sexes alike. Crown and a patch in front of each eye sparsely covered with black hairs, the skin blacksh in front and on the nape dingy red and warty; on the lower nape, a stay-blacksh triangular patch, the point behind it a white band down each side of the head from the eye joining behind the nape and covering the hind neck; chin, cheeks, throat and foreneck slaty-blacksh; remainder of plumage above and below ashly-grey except the outer light-feathers, the tips of the inner flight-feathers and the tips of the tail-feathers which are black.

Iris orange-red to reddish-brown; bill dingy horny-green, yel-

lowish towards the tip; legs black, soles fleshy.

Bill pointed; long neck and long legs; the inner wing-feathers (tertiaries) are long, rather pointed, loose-textured and rather curly, hanging over and concealing the true flight-feathers and tail.

Field Identification.—A huge grey bird with long need and lege, the head and upper neck blackish and white with a long and patch on the nape. Tail concealed by a mass of drooping outly plumes. Found on open plains in large flocks which fly in regularitions with a creaking trumpeting note. The black markings on the head and neck and the black lege distinguish it from the Sarra Chen bend and neck



1. Common Green Pigeon. 2. Blue Rock-Pigeon. 3. Red-wattle

T. France &

Bookh processes it we generally trouble to shoot the Conserver viction and the shoot is seen flashy to be palarable; but our statement regard it as a subscore article of diet, and it in person consists on the flash takes. Many are killed with how and see consists to hand, its better case they are grabbled (seen balary and who against got in host conclusive vice grabbled (seen balary was who against got in the control water with his hand (see

In Kathenir the Coon breeds in May and June, and in the plan-

The nen is a large main of reshes and flags with a depression top for the eggs; it is built assenged made and other aquatic regions other on the water or or the ground at in edge. The chairs are

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ME COMMON CRANE

Charles others (5 incomes)

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Iris orange-red to reddish-brow

Bill pointed; long neck and long legs; the inner was (tertiaries) are long, rather pointed, besse-textured and rather than the long rather pointed.

Field Identification
head and upper neck bississes
nape. Tail concealed
on open plains in large
creaking trumpeting
and the black legs



r. Common Green Pigeon. 2. Blue Rock-Pigeon. 3. Red-wattled
Lapwing. (All about & nat. size.)

Face h. 45

Dittillution.—A migratory bird, breeding in Northern Europe, and Northern Asia and wintering in Southern Europe, Northern Africa, South-western Asia, Northern India and China. In India it is found as a winter visitor through the plains of the north, extending as far south as the Bombay Decena and Orissa. India birds are said to belong to the race G. g. lilfordi which breeds in Eastern Siberia and Turkestan.

The Demoiselle Crane (Anthropoide virgo) is also a common winter visitor in flocks to Northern India. It is rather a smaller grey bird and is easily recognised from all other Cranes by a white plume of soft feathers behind each eye and the black under surface of the whole neck, terminating in black plumes pendant over the breast.

Habits, etc.—The Common Crane and the Demoiselle Crane are not usually distinguished from each other in India and are well known collectively under the names of Kunj and Kulung. They have very similar habits and are often found together.

The Common Crane arrives in India in late September and in October and stay until Morch and the beginning of April. In North-west India the passage may be an impressive sight. Both species appear to travel together. The observer who is favourably situated will bear one morning a loud clanging call and looking towards the sound will see in the distant sky a vast tangled skin of briefs. As it approaches it resolves itself into an immesse concourse of Cranes flying at a tremendous height. The stream of birdat strewls aroos the sky like an army. Big flocks, small parties, single birds and chevrons extend as far as the eye can reach, all travellig the same line. Then perhaps the leading flock circles round in a vast swif, feeling for its direction; the next formations close up to it and again the army moves forward. As they go a single bird trumpets, answered by

Come's power of uttering these sonorous and trumpet-like mis is usually attributed to the peculiar formation of its tracked or windippe which on quitting the lower end of the neck passes backward through the fork of the merythought and is received in a hollow space formed by the bony walls of the breast bone. Here it makes three turns and then runs upwards and backwards into the lungs.

three turns and then runs upwar and in parties or focks which while in India the Crue is owned in parties or focks which usually pass the uber the run of the parties or focks which was the parties of t

is delicious eating. The Came breeds in the north about May and June.

The Common Crane breeds in the north about May and June.

The nest is a large untidy heap of vegetable matter placed on the ground in open or thinly-wooded swamps and marshy clearings in

forest. The clutch consists of two eggs. The egg is a long oval narrowing to the small end, greyish-olive to greenish-brown in colour, blotched and spotted with dark and light reddish-brown and ashyerev.

The egg measures about 3.75 by 2.5 inches.

THE SARUS CRANE

Assurance of the

Description.—Length 5 feet. Sexes alike. Head and upper neck bright red, ashy on the crown, bare except for black hairs, and a patch of grey feathers on the ears; neck white, passing at its base into the bluish ashy-grey of the whole body plumage; outer flight-feathers blackish-brown, the inner flight-feathers grey and whitish.

Iris orange; bill greenish-horny with a black tip; legs fleshy-red. Bill pointed; the neck and legs are very long, the tibia being naked

for some distance above the joint.

The inner wing-feathers (tertiaries) are elongated and pointed, and droop over the true flight-feathers.

Field Identification.—A huge grey bird with a reddish naked head and long legs, found in pairs about marshy spots; bold in demeanour and always frequents the same place.

Distribution.—The Sarus Crane is found throughout northern India, and Assam to Burma, Siam and Cochin-China. It is divided into two races, of which we are concerned only with the typical form. This is common over the whole of the United Provinces and Upper Bengal, and is found, though in smaller numbers, in the Punjab south of the Chenab, in eastern Rajputana and parts of the Central Provinces. It is a strictly resident species.

Habits, etc.—In the area which it inhabits the Sarus Crane is well known, as a pair may be found in every jiked and tank of importance and in suitable stretches of rice-fields. They never perch anywhere except on the ground. The birds pair for life, and are very devoted and close companions, feeding together a few yards apart, and always flying in close company one slightly behind the other. So obvious is their affection that the legend has arisen, that if one of the pair is killed the other dies of a broken heart. They are never molested ordinging. It august young they become delightful pets, and kept loose in a garden make most efficient watch-dogs. The food consists of vegetable matter, insects, repriles and molluses.

Normally when feeding they are silent, but if disturbed in any way they give vent to a loud trumpet-like call which is also uttered freely on the wing. The flight is strong with regular rhythmic beats of the huge wings, but the birds seldom rise high above the ground, travelling as a rule within easy gun-shot.



Fig. 84-Sarus Crane (% nat. size)

In the breeding season the pair frequently include in a striking dance, spreading their wings and lowering their heads and leaping into the air, trumpeting budly the while. When disturbed at the

nest the female lowers her head and walks away slowly in a crouching attitude

The main breeding season is in the rains from July to September. though occasional nests may be found in other months.

The nest is a huge irregular mass of reeds, rushes and straw pulled up by the roots, and therefore much mixed with mud; it is built on

the ground in the middle of a rice-field or patch of swamp, and is often surrounded by shallow water. There is usually no attempt at concealment, the sitting bird being visible some distance off. One to three eggs are laid, but two are the normal number. The

eggs are elongated ovals, a good deal pointed towards the small end The shell is very hard and strong, pitted with small pores, and fairly glossy; flaws in the shell are common. The ground-colour varies from pure white to pinkish cream-colour or pale greenish. Some eggs are unmarked, but the majority are more or less spotted, blotched or clouded with pale yellowish-brown, purple, or purplish-pink, though the markings are seldom heavy.

The eggs measure between 3.5 and 4.5 inches in length, and

Description.- Length, male 18 inches; female 20 inches. Male in breeding plumage: A tuft of narrow ribbon-like black

feathers about 4 inches long, spatulate at the ends and curved upwards, behind each ear; head, neck and lower plumage black except for the chin and part of the throat which are white; a white band across the base of the hind neck; back and inner portion of the wings black with fine whitish mottling and arrow-marks, the black disappearing on the sides of the wings except for a bar; quills dark brown, all but the outmost banded with ochraceous-yellow, which is largely mottled with black; tail whitish, buff towards the base, mottled with black at the end and barred with black.

Male in winter plumage and female: Top of the head black, streaked with buff, and with a pale central band; head and neck finely vermiculated with black, the markings coarser on the sides; back black, mottled with sandy-buff and with buff arrow-markings; sides of the wings sandy-buff with irregular black bars; quills dark brown, all but the outermost banded with ochraceous-yellow, which is largely mottled with black; tail yellow-buff with black bars and mottled with black towards the tips, the central feathers mottled throughout; chin and throat white; fore-neck and upper breast buff

with black streaks; remainder of lower plumage buffy-white, the long feathers under the wings black.

Iris pale yellow, clouded with dusky in the male; bill yellowish,

dusky along the top; legs dirty whitish-yellow. Weight: male 14 oz. to 1 lb. 4 oz.; female 1 lb. 2 oz. to 1 lb.

The bill, neck and legs are rather long.

Field Identification .- A small, long-legged Bustard, sandy-buff and blackish in colour, the male in the breeding season becoming black



and white with graceful curved plumes behind the ears. Found chiefly in grassy plains, and has a curious habit of jumping into the air above the grass.

Distribution.—Confined to India. Its main stronghold is in the drier portions of the Peninsula lying east of the Western Ghats and south and east of the Godavari. It has not been recorded from the North-west Frontier Province or the Northern and Western Punjab or east of the Bay of Bengal, but within these limits it may be found in almost every part of India, even Lower Nepal and Baluchistan

appearances are often erratic.

The larger Bengal Floriken (Sypheotides bengalensis) is very similarly coloured, but in place of the curious ear-plumes the male has a full crest and the feathers of the chin, throat and lower neck conspicuously elongated. This species is resident in the country between the base of the Himalayas and the Ganges and in the plain of Assam, being most common in the grasslands of the Terai. In the more desert country undulata) which is a winter visitor from September to March. This species has a thick ruff of black and white feathers down each side of the neck. The lower parts are white. Beautiful bluish-grey bars run through the tail.

The Great Indian Bustard (Choriotis migriceps), a huge bird with a black cap and whitish neck weighing up to 40 lb., is mostly found in North-west India.

Habits, etc.—This beautiful little Bustard is usually found singly in wide grassy plains or in crops of standing grain, and though numbers often occur in such localities they do not join into flocks. It may also be found in any other form of crop which is dry under foot, and neither too dense to make walking difficult nor too high to prevent it readily taking to flight. It of course never settles or feeds elsewhere than on the ground. In the cover that it frequents it is not shy, usually rising for the first time when disturbed, within easy shot; but after having been once flushed and allowed to settle again, it is difficult to find a second time, for it either runs some distance from the spot where it settled or else squats closely hidden on the

On the wing it flies with a rather peculiar wheeling flight with quick wing-beats, but does not usually rise very high into the air.

The food consists chiefly of grasshoppers, but other insects, grain, seeds and tender shoots are also caten.

The main breeding season is from August to October, but as the bird is essentially a "rains breeder," it is very irregular in its season and many nests are found earlier and later. It should, however, be clearly stated that wherever the bird appears as a rains visitor it is almost certainly breeding, and sportsmen who shoot this bird in the rains (as is unfortunately too common a custom) should understand that they are materially contributing to the extinction of a magnificent game-bird whose numbers are already seriously diminished.

The most marked characteristic of the species is its habit of suddenly jumping off the ground into the air above the grass, a habit that by revealing its often unsuspected presence, greatly adds to the ease with which its destruction is encompassed. This is done sometimes by the female, but the vast majority of the jumping birds are males, and as they jump they utter a guttural croak similar to that of a frog or to the noise of two sticks being hit together. The habit may be considered as a nuptial display. It is believed that the birds do not pair but that the males have each a particular territory, and that the females wander about until they succumb to the fascinations of a male and then lay and incubate their eggs and rear the young without his help. If this view is correct, the male would seem to jump to reveal his presence in the long grass and his readiness to court any female that has wandered

No nest is made, the eggs being deposited on the ground in some thin patch in a field of grass. Two to five eggs are laid, but the normal

The egg is a very broad oval with only a slight difference between the two ends. The shell is stout and smooth, closely pitted with

The ground-colour varies from clear green to darkish olive-brown; the markings consist of cloudy streaks of brown of different shades, varying a good deal in intensity, but as a rule more marked towards the broad end.

In size they average about 1.88 by 1.59 inches.

THE STONE-CURLEW

Description.-Length 16 inches, Sexes alike. Upper parts ashybrown to sandy-buff, the edges of the feathers rufescent, and the shafts with black stripes; a dark streak through the eye with a creamy streak above and another below it; a dark moustachial streak; sides lower parts white, fore-neck and a patch under the tail pale rufous, the breast region streaked with dark brown.

Iris bright yellow; bill black, yellow about the base; legs yellow. legs are long and bare, with only three toes, the nail of the middle toe dilated on the inner side; wings long and pointed; tail slightly

Field Identification.—A streaked-looking brown bird with long bare legs and a large head with huge yellow eyes; in flight a conspicuous white patch in the wings. Found running on sandy or stony ground. 440 FOFCLAR HANDBOOK OF INDIAN BIRDS

Distribution.—The Stone-Curlew is widely distributed in Central and Southern Europe, in Northern and Eastern Africa, and in Asia

It is divided into several races, of which two only appear in India, B. a. indicus is the resident form which is found virtually throughout India, Ceylon and Burma. A pale desert race, B. a. sahariae, found in Africa, Transcaspia and Eastern Persia, partly replaces it in Baluchistan

and Sind and the Punjab.

The Great Stone-Plover (Eucus recurricatri) is resident in the wide sandy beds of the larger rivers of the plains of India, Burma and Ceylon. It is larger than the Stone-Curlew with a heavier beak and is greyer and more uniform in coloration, dark bands on the head and shoulder being complicious by contrast.

Habits, etc.—The Stone-Curlew, Norfolk-Plover or Thick-knee



Fig. 86-Stone-Curlew (1 nat. size)

(as it is variously called) is somewhat locally distributed in Italia on account of its special requirements in the way of habitat. The country that it inhabits must be dry with patches of serub and low jumple, or with large grows and dry phech studded with utfax of grans; in such localities it frequents the open wastes and ploughed fields, and it is also particularly partial to the huge old mango topes, which are charge-teristic or parts of India, surrounded with mud walls and thinly planted so as to be also receives for grans.

This bird is strictly a ground species, and is largely meetureal, as is suggested by the large eyes. Usually found singly or in pair, it collects at times into parties. Owing to its shywess and posterior coloration it generally escapes notice until it suddenly takes to wrige in front of the observer; it flies awiftly, low over the ground, with the long yellow legs outstretched behind, and in its name of flight and with the conspicuous white patches in the wings it recalls the appearance of a Bustact. On the ground it truns rapidly in little bursts with

short pattering steps, with the head lowered and the neck retracted in a thoroughly shame-faced manner. At times it squats, with the body pressed to the ground and the head and neck outstretched. The call is a loud curlicee, very cerie and plaintive in tone, which is usually uttered at dusk or during the hours of night.

The breeding season varies from February to August, but most

eggs are laid about April.

The nest is a more scrape on the ground, often amongst dry leaves or near the base of a bush or tuff of grass. Two or very rardy three eggs are laid. The egg is a broad oval, rather obtuse at both ends; the texture is fine and hard, but normally without gloss. The ground-colour is yellowish-white or buffy-brown; the markings are spots and specks, streaks and blotches of deep olive-brown or black, combined in an endless variety of designs over the surface of the egg; there are a few secondary markings of pole inthe-purple.

In size the eggs average 1-9 by 1-30 inches.

In this species as in most of the Plovers and Waders the "incubation patches" are found in a lateral position instead of in the normal central position. These patches, which are physiological in originar produced by a local mount with a local increase of blood supply

and serve to raise the temperature of the brooded eggs.

CHE INDIAN COURSER

CURSORIUS COROMANDELICUS (Gmelin)
(Plate xvii, Fig. 4, opposite page 408)

Description.—Length 9 inches. Serse ailse. Top of the head chapter, darket behind where clongsted feather conceal a black aport; long white atreads over the eyes, meeting behind on the nape, and bordered throughout below by a black band; a raftous collet behind the black; upper plunning and "behind the black; a white patch on the part of the tail; central full-feathers and "brown, the others grow and white into the colour of the tail; the control tail-feathers and "brown, the others grow and white into the colour of the tail typed with white, the white increasing outwards till the outermost pair are quite white; clink white; neck and breast rufusus passing into chestrat not the lower breast with a black patch on the upper into chestrat not the lower breast with a black patch on the upper

Iris dark brown; bill black; legs dead china-white.

The bill is slender, curved and pointed; wings pointed and tail

The bill is stender, curved and policy short and square; legs long with three toes.

Field Identification.—A small Plover-like bird with long white legs which is found running rapidly on open sandy ground; the

white eye-streaks bordered below with black and contrasting with the chestnut crown, and the chestnut breast and black belly are conspicuous.

Distribution.—This species is found in Africa and in India as well as in the extreme north of Ceylon. In India it is found in suitable areas from the base of the Himalayas right through the Peninsula, but it is rare on the Malabar coast and in Lover Bengal. Birds from India and Ceylon all belong to the typical race. On the West it extends to about the line of the Indus Valley though it is scarce in Northern Sind and the West and North-west Puniph, where it is replaced by the Cream-coloured Courser (C. cursor), which lacks the chesturut breast and black belly. A resident species.

Habiti, etc.—The Indian Courser is a bird of dry open, more use less bare and moderately watered tracts, frequenting parches of barren stony land, or cultivation that is lying fallow. In such localities the Courser will be found, in pairs if breeding, in small parties at other seasons, running and feeding on the ground. When feeding this bird has curious and characteristic movements, as owing to the long legs, it has to dip down very suddenly and completely to reach the dips, with usually a quick run of several minicing steps between the dips. When disturbed the bird rises with a distinctive note and the wings look very pointed, the flight being strong and straight with marked beats of the wings. It does not as a rule fly very far before settling again, and then it runs swiftly in little sparts; but when danger really threatens it can fly very high, fast and strongly, and no Falcon can take this little Hoyeror the knip.

The food largely consists of the small black beetles that are found on the dry ground that this species frequents. Weevils, ants, caterpillars and other larve and small molluses are also eaten.

The breeding season lasts from March to July. The nest is a mere scrape on the ground, sometimes in the middle of a bare plain, at other times under a tuft of grass or low bush in stunted, straggling jungle on a dry plateau or faintly marked ridge.

The clutch consists of two or three eggs.

The eggs are almost spherical, of fine texture and without gloss. The ground-colour varies from cream to bright buff; the markings consist of mottlings, clouds and spots of pale inky-grey, overlaid with lines, scratches, spots and streaks of blackish-brown, black, and rich olive.

The average size is 1.19 by 0.97 inches.

THE LITTLE INDIAN PRATINCOLE

GLAREOLA LACTEA Temminck

Description.—Length 7 inches. Sexes alike. Upper plumage pale anady-ergy forehead brown, and a band form the eye to the beak black; outer quills blackish, gradually growing white inwards; tall and its coverts white, blackish towards the end, the black are longest on the central feathers, which lack the brown and white tips of the other feathers; lower plumage smoky-brown tipped with rufous, becoming white from the lower breast downwards; winger

Iris dark brown; bill black, basal half red, yellowish-brown at

gape ; legs black.

The bill is short and curved with a wide gape; wings long and narrow; legs short, the hind toe raised above the level of the others, the middle and outer toes united by a small web.

Field Identification.—River bird, occasionally visiting jheels; found in big flocks; on the wing rather like a large brown Swallow, with black-tipped white tail and pointed dark wings, flying rapidly

Dittribution.—This Pratincole or Swallow-Plover is found in India, Ceylon, Burma, and Assam. It is practically confined in India to the beds of the various large irvers such as the Indius, Ganges, and Brahmaputra with their tributary trivers, so far as they continue to be broad streams with wide sand-banks, flowing peacefully when not in

Habits, etc.—This quaint little bird is found about the sandbanks of the larger and more placid rivers, and only occasionally leaves them for an evening flight to open placels in the vicinity. It is invariably found in large columes, which are social in all the incidents of their life, breeding in large numbers together, and feeding in large flocks which skim about the surface of rivers and pleeds, eatching insects on the wing. In their flight, appearance and habits they well deserve the name of Swallow-Ploor; to the numinated they might easily appear to be larger relatives of "office of the place" of the place and a currons low, raching up stream, and on occasions they mount the flocks usually feel flying up stream, and on occasions they mount the flocks usually feel flying up stream, and on occasions they mount

The breeding season asia of the sandy margins of in large colonies on island sand-banks or on the sandy margins of the rivers, and these colonies are frequently wiped out wholesale by temporary rises in the river-level. These inundations appear to be

the only check on the undue increase of the birds, as they have no enemies to prey on them. Terns, Scissorsbills and various Plovers nest in close proximity to the Pratincoles.

The nests are mere hollows scraped in the sand, often through a hard crust that forms when alluvial mud has been deposited on top of the sand. They are placed either in the open or in the shade of the small tufts of tamarisk that grow on most of the sand-banks. To approach a colony is to provoke a scene of wholesale alarm. Some of the birds skim round about uttering their curious note, others flutter down on to the sand and there gasp and futter, now lying



Fig. 87-Little Indian Pratincole (1 nat. size)

exhausted with outspread wings, now dragging themselves along in all the apparent throes of a mortal wound; more consummate acting to divert the intruder from the nests could hardly be imagined.

The eggs vary in number from two to four. They are broad ovals, pointed at one end; the texture is close but somewhat chalky and devoid of gloss. The ground-colour varies from pale greenish-white to pale fawn and stone-colour; the markings consist of spots, streaks, blottes, liens and clouds of olive, reddish-brown or purple, but the eggs are usually finely and lightly marked and blend fairly well with the sand on which they lie.

In size they average about 1.05 by 0.88 inches,

THE BRONZE-WINGED JACANA METOPIDIUS INDICUS (Latham)

Description.—Length 11 inches. Sexes allike. Head, neck and lower parts to the abdomen black, glossed with dark green, the lower hind neck with a purple gloss; a white line over the eye and a white spot beneath it; back and wings olive-bronze, the flight-feathers black, glossed with dark green; lower back to the tail and its overest chestmut, the tail-feathers darker; lower abdomen and thighs dull black-like browne.

Iris brown; bill greenish-yellow, reddish at base, and a broad lappet at its base on the forehead livid; legs dull green.

The wing has a small tubercular spur at the bend; the toes are long with long straight claws, the claw of the hind toe being particularly exaggerated.

Field Identification.—A Rail-like bird with disproportionately long toes and claws which is found walking on weeds and plants on the surface of water. Blackish in colour with a bronze back and a short chestrut tail, easily distinguished from the Pheasant-tailed Jacana by this last feature.

Distribution.—This is a widely-apraed bird found in India, Assam and Burran, extending through the Malay Peninsula to Sian, Susmars, Java and Celebes. In India it is not found in the north-west at all, but is very common in the moister districts of One, the Sub-Himslays Derisal Central Persis of Robitshand and Gorshipor and through most of Bengal, occurring also southwards through the Central Provinces and the Peninsula generally. It does not seemed any of the hill ranges, and

it is a resident species.

Habit, ste.—The Brome-winged Jaccas is purely a water-bird, Brabit, ste.—The Brome-winged Jaccas is purely as water-bird, never frequenties but briefly exclusively in pleed and swamps, exclusive the place and we have been as the property of the beaves of the botts and other water plants, with deep reed-beds along the sides. For life in such surroundings it is specially adapted, the toes being clongsted and the class straight and of great length, affording a snowshoot-like surface which allows the lird to move about on water, walking over the class straight when necessary, but the property of the property

The breeding season is in the rains from June to September. The next is generally rather large, composed of rushes and water-weed twisted round and round to form a circular pad, with a depression for the eggs in the centre. It is placed in a well-sheltered spot, usually amongst thickly growing Jouss leaves, either on the surface of the

water or on the edge of an island.

The clutch normally consists of four eggs, but more are occasionally

The eggs are moderately broad ovals, a good deal pointed at one end, and of fine hard texture. They have the most brilliant gloss of all Indian eggs; so brilliant indeed that persons who are shown them for the first time will hardly credit the gloss with being natural in origin.

The ground-colour varies from pale stone-brown to deep rufous or olive-brown. The markings vary from reddish-brown to blackishbrown and black, and consist of the most inextricable network of lines, some fine, some coarse, evenly dispersed over the whole surface.

In size they average about 1.47 by 1.03 inches.

THE PHEASANT-TAILED JACANA

HYDROPHASIANUS CHIRURGUS (Scopoli)

Description.—Length: Male 12 inches, 6 inches longer in summer with the long tail plumes; female larger, total length with plumes in summer 21 inches. Sexes alike.

Winter plumage: Upper plumage brown, speckled with white on the forthend and hind neck; a white line over the eya, and from it a pale brownish-yellow band runs down the side of the neck, bordered below by a blackish band from the beak which expands into a broad gorget across the breast; remainder of lower plumage and outer tailfeathers white; central tail-feathers brown; wings whitiy-brown barred with dark brown, a white patch on the sides, the outer quills black, gradually becoming white inwards.

Summer plumage: Head and front of the neck white; a patch on the nape and a narrow line down cach side of the neck black enclosing a patch of pale shining golden-yellow on the hind neck; the whole body chocaltee brown, glossy on the upper parts; tail and a patch above it blackisi; sides and underneath of the wings white, the quills as in winter.

Iris pale yellow; bill bluish in summer, in winter dark brown with the base yellow; legs pale plumbeous in summer, dull greenish in winter.

There is a strong sharp spur on the bend of the wing; the first flight-feather ends in a curious lanceolate appendage, and the fourth flight-feather in an attenuated point; the central tail-feathers are long and pointed in summer plumage. The toes are very long with long

Field Identification.—A Rail-like bird with disproportionately long toes and claws which is found walking on weeds and plants on the surface of water. Distinguish from the Bronze-winged Jacana by the large amount of white in the wings in flight and in the breeding season by the long central tial-feathers.

Distribution.—This Jacana has a wider distribution than the last species, being found throughout India, Ceylon and Burma, and farther castwards as far as South China, the Philippines, and Java. In India it is very generally distributed, occurring in the Himalayas



Fig. 88-Pheasant-tailed Jacana Summer plumage (1 nat. size)

commonly on the Kashmir lakes at 5000 feet and straggling up to 12,000 feet; to the west it reaches Baluchistan. While for the most part resident it is also partly migratory.

Habits, etc.—The Phessant-tailed Jaena agrees with the Bronzewinged species in being adapted by its configuration to a purely aquatic life. It lives on tanks, marshes and lakes, where thickets of received and darks allow it to valle at its ease; but it differs from the later species in being less slay, more ready to frequent open water, and more accustomed to wander to flood water, streams, and similar spots free of weeds on which the Bronze-wing is never found. Although not atrietly speaking a social species, many will be found on the same piece of water.

This bird rather resembles the Pond Heron in its capacity for startling the unobservant. Standing on submerged weeds in the water it easily escapes observation until it rises with a sudden startling flash of the white wings, flitting away over the water with a Wader-like flight until it settles again, and once more becomes invisible.

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It has a very curious mewing call which might easily pass for that of an angry cat. It feeds on fresh-water molluses and vegetable

The breeding season is in the rains from June to August. The next varies; sometimes it is a mass of weeks and rushes harped together on a small island or in the water amongst thick grass or growing rice, At other times it is a floating structure of weed and grass barely also to contain the eggs which look almost as if they were floating in the water. In either case the eggs are half-immersed in the sun-warmed water, and its heat with that of the decaying vegetation must materially assist the process of incubation.

This species lays a clutch of four eggs which are arranged with

And the eggs are markedly pyriform in shape with a compact and hard texture and a bright gloss. They are without markings, and when fresh are of a rich deep bronze colour, with either a rufous or greenish tinge; but as incubation progresses they bleach sadly under the combined influence of sun and water.

In size they average about 1.46 by 1.12 inches.

THE RED-WATTLED LAPWING

LOBIVANELLUS INDICUS (Boddaert) (Plate xviii, Fig. 3, opposite page 432)

Description.—Length 13 inches. Sexes alike. Head, neck and upper breast black, except for a broad white band from each eye which passes down the sides of the neck and joins the white lower parts; upper plumage and wings brown, glossed with greenish-bronze and slightly with red; a white wing-bar; the greater part of the flight-feathers black; sides of the lower back, rump and upper tail-overts white; tail white with a broad black subterminal band, the central feathers having this band bordered on both sides with brown, the other feathers with white ties.

Iris red-brown, eyelids and a conspicuous wattle in front of the eye lake-red; bill red, tip black; legs bright yellow.

The wing has a tubercle at the bend which becomes a horny spur in the breeding season; legs long with small hind toe.

Field Identification.—A tame familiar Plover found in pairs, which rise with a loud did-he-do-it; brown above, white below with conspicuous black and white head and neck and long yellow legs; a marked red facial wattle.

It must not be confused with the Spur-wing Plover (Hophopterus Areauceiii) which is confined to the beds of the larger rivers as far south as the Godavery but excluding the Indus drainage. This has no red-wattle, the black of the throat does not reach the breast and a black parts on the shoulder and a black horse-shoe on the belly are distinctive. The curious horny spur on the bend of the wing is not visible in the field.

The Med-wattled Lapwing has a wide distribution from Mesopotamia throughout India, Ceylon and Burma to Cochin-China, the Mally Perinaula and Sumatra. It is divided into races, of which two come into our area. The typical race is found throughout Southern India and in Ceylon, occurring in the Nighris up to about fooo feet; I. i. agneri, a slightly larger and paler bird with least bronze sheen, is found in Northern India; generally, occurring in the Himalayas far into the inner valleys up to 6000 feet. It is a resident

The familiar Green Plower or Peewit Wondlux wondhay of Europe is a common winter visitor to North-west India in flocks, unsully found on damp ground. The combination of peculiar long narrow pointed crest, black breast, greenish upper parts and path of chestunt at the base of the tail are distinctive, as are the broad rounded wings and pied anonexarone in flight.

Habiti, etc.—This long-legged Plover avoids both purely desert country and thick forest, but is otherwise a familiar bird throughout India, though it prefers open cultivation and the outskirts of tasks and pleeds. It is found usually in pairs, and the birds seen conscious of the fact that their artising coloration is of the "obliterative" type, and by remaining motionless they frequently essage the notice of the passer-by. They, of course, never perch on trees, and when disturbed they do not by far, but settle again quickly and then run a few steps; but the long wings are capable of a strong and sustained flight when required, and good sport may be obtained by thing trained falcons at this species. The call is a series of loud shrill notes well expressed by the words, disk-hed-bit pity-bad-bit usually uttered on the wing when the bird is disturbed. Another common note sounds much like the syllable birit.

The breeding season is somewhat extended from March to August, but the majority of eggs are laid in May and June. The nest is placed on the ground in almost any open ground provided that water is reasonably near; a slightly elevated situation is often chosen, such as on a grave or small mound, and numbers of nests are placed on the ballast of railway lines; occasionally the nest is placed on the flat recoff of a bourse.

The nest is a circular depression scraped in the soil, and it is sometimes encircled with small stones or pieces of hard clay. The clutch consists of four eggs. They are pyriform, that is, bread and obtuse at one end and much pointed at the other. The ground-colour varies from pale olive-green to yellowish or reddishbuff. The texture is close and a little chalky with very little growth. The markings of deep brown or black thickly cover the surface with blotches, streads, spots and clouds, evenly distributed.

In size the eggs average about 1.65 by 1.2 inches.

THE YELLOW-WATTLED LAPWING

LOBIPLUVIA MALABARICA (Boddaert)

Description.—Length to inches. Sexes alike. Top of the head and neck black, bondered behind the eyes with a white line; chin black; rest of the head, neck, upper breast, back, wing-coverts and inner flight-feathers light brown; wing-quills black, the bases of the outer feathers white on the inner webs, the white increasing on the outer feathers white on the inner webs, the white increasing on the largest coverts; a patch above the tail white; tail white, lightly awashed with brown, with a broad black band near the tip which gradually disappears on the outer feathers; lower parts from the breast white.

Iris silver, grey or pale yellow; bill black, vellow at base; wattle

pale vellow; legs vellow, claws black.

A fleshy wattle in front of each eye, meeting above the beak and with a lappet descending on each side of the gape. Legs long and

slender. No hind toe.

Field Identification.—Peninsular India. A quiet brown-looking Plower with black crown, white belly and wing-bar and long yellow legs; facial wattle yellow. Found in dry one country but not true desert. Smaller than Red-wattled Lapucing and easily distinguished from it by the colour of the wattle and by having the throat and breast light brown not closes black.

Distribution—Restricted to India and Ceylon. In India it is found in suitable country throughout the Peninsula up to the base of the Himslayas. On the cast it extends to Calcutta and Dacca, On the west it ranges as far as the Studje in the Punjab and Karachi in Lower Sind, though it is absent from most of the desert country between those two areas. A resident species with some local migrations.

Mention should just be made of the Eastern Golden Plover (Plucialis dominica), with its upper plumage brown spangled with golden-yellow, which is an abundant winter visitor to Assam and parts of Eastern India, occurring less commonly in other areas across the Peninsula: of the Sociable Plover (Chettuia gregaria), a nondescript

brown and white bird in winter plumage which occurs commonly in flocks in open country: and of the White-tailed Lapwing (Chettusia leacurar), a slender brown, black and white Plover which is a jibeelhaunting species. Both of the latter are common in Northern India in winter, growing scarcer southwards.

Habits, etc.—The Yellow-wattled Lapwing is a bird of dry and open country where it is found on waste land and polopole fields. In such areas it may be met in twos and threes or small parties freeding on the ground and searching for beetles, grubs, insects, white ams and similar food. Unlike the Red-wattled Lapwing it avoids the neighbourhood of water. The call is a plaintive desaut de-ent, much less hanh and found than that of the last species and the bird is altogether less

The breeding season lasts from March till the end of June, but

most eggs are to be found in April and May.

The net is usually made in the open without any attempt at concealment, and a ploughed field affords a favourite situation. The nest is a small circular depression in the ground, scooped out by the bird and entirely unlined. It is some 3 or 4 inches in diameter and an inch in depth and is often deepened by the addition of a little earth or tipy pieces of knukru being scraped up against the margin all round.

The clutch consists of four eggs. They are pyriform, that is, broad and obtuse at one end and sharply pointed at the other, so that when they are arranged in the nest with the points inward to a common centre they take up the minimum of room—an admirable provision of nature which allows eggs large for the size of the bird to be astisfactorily broaded by it. This arrangement is common in the Plover family and is of course necessitated by the fast that the young Plover is hatched in an advanced stage of development and as lake to man tibut.

The egg is of hard texture with no gloss. The ground-colour varies from buff to pale greenish or olive stone-colour, and it is fairly thickly studded with spots, streaks and blotches of deep brown, interspersed with spots and streaks of pale olive-brown and dingy inky-purple.

It measures about 1.45 by 1.07 inches.

THE LITTLE RING-PLOVER

CHARADRIUS DUBIUS Scopoli

(Plate xix, Fig. 3, opposite page 456)

Description.—Length 6 inches. Sexes alike. A black band from the forehead through the eye to the ear-coverts, joined by a broader black band from the eyes over the top of the head, encloses a white band on the forehead; chin, throat and a broad collar round the neck white, the white running up behind the black bands; remainder of upper plumage brown; quills dark brown, the outermost blackish and the inner ones tipped with white; tail brown, darker towards the end, all except the central pair tipped with white, growing more extensive outwardly; lower plumage and wing-lining white.

Iris dark brown, eye-rim yellow; bill black, yellow at base; legs vellow, claws black, The head and eyes are rather large; the wing is pointed and long;

there is no hind toe.

Field Identification.-A very small Plover usually found on sandy or stony ground near water. Black bands on the head and breast divided by a white ring round the neck stand out in contrast with

the brown upper parts. The swift flight is emphasised by sharplynointed wings.

Distribution.-The Little Ring-Plover is distributed widely throughout Europe, Asia and Northern Africa. It is divided into three races, of which we are concerned with two. Charadrius d. curonicus breeds in Europe and North-western Africa, eastwards to Northern Asia and Kashmir. It winters in Africa, India, Ceylon and the Malayan Archipelago, arriving in India about August and leaving in April and May, Charadrius d. jerdoni, a smaller race, is the breeding bird throughout India up to the Himalayan foothills, found also in Borneo and New Guinea. It is probably a local migrant only.

The Kentish Plover (Leucopolius alexandrinus) is a winter visitor to the seashore and the sandy margins of rivers, iheels and tanks throughout India. It also breeds in Baluchistan, Sind, Cutch, and Ceylon. About the same size as the Little Ring-Plover, it lacks the black band on the breast and in breeding plumage has the crown rusty

Habits, etc.-The Little Ring-Plover is essentially a bird of the sandy and stony margins of rivers and streams wherever they are fairly wide, and of the dried mud flats that form round the edges of drying iheels and swamps; it also wanders temporarily to various types of ground, where the presence of rubbish or the drying up of temporary ponds and inundations produces an abundant supply of flies and other insects that form its food. It perches nowhere except on the ground, and there it spends most of its time seeking for food and walking with dainty steps and little short runs, and bobbing down with a curious characteristic movement to pick up food. On the approach of an intruder it runs rapidly over the ground, largely escaping notice with its mixture of protective and obliterative plumage, the brown upper parts blending with the colour of the ground, and the black and yellow markings tending to break up the shape of the bird. Once compelled to take to wing it flies rapidly low over the ground with a wheeling motion, the pointed wings beating rapidly, and as it

flies it utters a sharp plaintive pipe or whistle. This note is particularly marked in the breeding season, when it is uttered in the course of the fast flight round and about the female which forms part of the courting display, and which also is adopted as a relief to outraged nerves when the nest is in danger.

In the display proper the feathers on both sides of the breast are fluffed out and the tail is spread into a broad fan. At this period the male is very pugnacious and chases away other species of small birds

from the vicinity of the nest.

Except when breeding, this Plover is usually found in small parties, of which the members run about independently on the ground, but at once unite when they take to wing.

In India the breeding season is from March to May. The nest is a slight depression scraped amongst sand or fine pebbles, generally in the hed of a small river or stream, or on the sand-banks of the

large rivers. The clutch consists of four eggs. They are broad ovals, very sharply pointed towards the small end. The shell is very fine and compact, but virtually without gloss. The ground-colour varies from buffish stone-colour to pale greenish-grey, and the markings consist of fine spots and speckles and fantastic little lines of brownishpurple or black, together with a few secondary markings of very pale inky-purple. The markings are generally and evenly distributed,

except that they tend to be more numerous round the broad end.

THE BLACK-WINGED STILT

Description.-Length 15 inches. Male in winter:-the plumage is white except as follows: Top of the head and the upper back sullied with brown bases to the feathers and a few dark tips; the wings and the back between them black, glossed with metallic green : the tail and its upper coverts sullied with drab grey.

In summer plumage the under parts are suffused with a rosy tint, and the top of the head becomes black and white in varying degrees. The female has the black back and wings sullied with brown,

and does not attain the rosy tint.

Iris red; bill black; legs lake-red, claws black. The bill is long, straight and slender, the neck is long, the wings great proportion of its length; there is no hind toe and the three front toes are partly joined with webs.

Field Identification.—A slender black and white bird with long straight beak and absurdly long red legs, always found wading in water. It can only be confused with the Avocet (Recurvirostra avocetta), which has the long beak curved sharply upwards.

Distribution.—A widely distributed species, the typical form occurring in Southern Europe, Africa and Central and Southern Asia, and being represented by other races in America, Australa, New Zealand and Ceylon. Some individuals are resident and breed in North-western India, in Kashmir, the Punjab, Sind, Sambhar Lake and Baluchistan. Others are winter immigrants from the north, so that the bird is widely distributed in India throughout the polian in



Fro. 89-Black-winged Stilt (| nat. size)

winter. The resident race in Ceylon, H. h. ceylonensis, has less black on the head in breeding plumage.

Three other slightly larger waders, all brownish in coloration with white under parts, require mention as common winter visitors to India and Geyion. The Curlev (Wamenia ampata), remarkable for its long down-curved beak and loud plaintive calls, a shrill cour-lie or a mustail apoy-apor, is found both on the seashor and about inland waters throughout India. Its smaller counterpart the Whimbrel (Wamenia phenopul) is more common on the coast. The Black-tailed Godwit (Limena limena) with a long straight bill is found in flocks on inheels in Northern India only.

Habiti, etc.—The Stilt is purely a water-bird, and is found in small parties which feed about the shallower portions of lakes, jheels and marshes, even condescending to visit village ponds and flooded cultivation. Owing to its long legs and long bill, it is able to wadeout into deeper water than most waders, and therefore tay supplies of food that are not available to them; and when so wading its mode of progression appears somewhat awaward, as for each step the long laps have to be drawn out of the water backwards to avoid its resistance, throught forward in the air and again deliberately placed in the water. Stifts occasionally associate with Avocets and Godwiss, similarly long-legged birds, but they do not as a rule mix with the other waders. The food consists of minute seeds of water-plants, insects and small molliacs and worms. In flight the long legs are extended straight beyond the tail. The ordinary call is very reminiscent of that of a Tern, and the alarmonte is a shrill pipe. At the nest colonies the birds are very noisy and demonstrative, flying towards any intruder, and passing backwards and forwards over his head with loud cries, though when the actual site of the nest is reached they retire and atheir at a distance.

The breeding season is from April to June. The birds nest in colonies in shallow flooded salz-pass or about the margins of jheels, and the nests are built actually in the water or on mud and ground beside it. The nest is a hollow, natural or artificial, on the ground, sometimes bare, at other times lined with pieces of kunkur or the sticks and other debris from flood-weekek.

The clutch consists of three or four eggs which greatly resemble those of the Red-wattled Lapwing.

The egg is a moderately broad oval, elongated and sometimes from the texture is fine and compact with a slight gloss. The ground-colour is olive-brown, greenish stone-colour or creamy-buff; the markings consist of specks, spots, blotches and streaks of black and rich umber-brown, with a tendency to collect about the broad and rich umber-brown, with a tendency to collect about the broad properties of the collect about the collect

In size the eggs average about 1.64 by 1.13 inches.

THE COMMON SANDPIPER

TRINGA HYPOLEUCUS Linnæus

Description.—Length 8 inches. Sexes alike. Winter plumsag:

Upper plumage olive-brown and rather glossy, the feathers dark
shafted, and except on the head and neck with pale tips and a dark
subterminal bar; the outer quils dark brown, the inner quils white
with a broad subterminal brown band; central tail-feathers like the
back, the outer banded dark brown and white; an indistinct pale
line above the eye; sides of the head, neck and breast saley-brown
with darker streaks; lower plumage white, a few dark streaks on
the fore-neck.

In summer plumage the upper parts are darker and more heavily marked, and the fore-neck and breast are more streaked with brown, Iris brown; bill greyish-brown darker at tip and greenish at base: legs pale green.

The bill is long, straight and slender; the front toes are slightly

Field Identification.-A small wader with a slender bill, upper parts unbroken glossy brown, lower parts white, which is found solitary, feeding about the edges of open water; incessantly wags the short tail up and down, has a chittering call, and in flight beats the wings in a curious stiff manner.

Distribution.—The distribution of this Sandpiper includes the greater part of the Old World. It breeds from the Arctic circle to the Mediterranean Basin in Europe, and in Asia north of the Himalayas eastwards to Iapan. In winter it migrates southwards to Africa.

India, the East Indies, Australia and Tasmania.

Within our limits the bird breeds in Kashmir and Lahul, and in the winter it is common throughout the whole of India, arriving about

August, and leaving in early May.

Habits, etc .- In India this graceful little Sandpiper is usually found as a solitary bird feeding along the sides of ponds, rivers and streams, of canals, and even along the seashore. Although well able to swim, dive or wade if the necessity arises, it prefers to feed exactly along the edge of the water, tripping along the margin of sand or mud, just dipping its toes in the water and picking its food from the surface of the shore. Hence it is seldom found in marshy ground with other waders, but shares with the Green Sandpiper the edges of tanks and village ponds. It is very busy and active, incessantly nodding its head and jerking its tail up and down; and when it takes to flight flies low and swiftly just above the surface of the water with curious stiff, downward wing-beats, the wings appearing hardly to rise above the level of the back. A shrill note dee-dee-dee is usually uttered on the wing. In the breeding season this is developed into a regular song, kitty-needie, kitty-needie, kittie-needie, uttered as the bird soars and then descends on quivering wings, while a whole series of chittering, piping whistles betray the bird's agitation when the nest or young are approached.

The food consists of insects and their larvæ, sand-hoppers, fresh-

water shrimps and other similar small organisms.

In the Himalayas the breeding season is in May or June. The nest is placed on the banks and islands of mountain rivers at a short distance from the water, where low bushes grow amongst the sand and stones. It is a slight hollow on the ground, sparsely lined with fragments of sticks or dead leaves.

The clutch consists of four eggs. The eggs are pyriform or



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elongated ovals, rather pointed towards the small end; the texture is fine and close, and there is a slight gloss.

The ground-colour is a creamy stone-colour or buff; the markings consist of specks and spots and small clouds of rich red-brown, reddishpurple, and inky-purple, and they are not very dense though sometimes tending to form a cap at the broad end.

In size they average about 1.45 by 1.05 inches.

THE GREEN SANDPIPER

Tringa ochropus Linnæus (Plate xix, Fig. 2, opposite page 456)

Description.—Length 9 inches. Seess ailke. Winter phamage: Top of the head and hind neck hown with an aby tinge; upper plumage brown with an olive tinge, the feathers of the back and shoulders edged with alternating white and dark sport; rump brown; a patch on the base of the tail white, the remainder of the tail white barred with dark brown, the bars disappearing on the outer feathers; lower plumage white, the sides of the neck and breast with narrow brown streaks; wine-lining brown barred with white.

In summer the upper plumage is spotted with buff and white, and the brown streaking of the lower plumage is more marked.

Iris brown; bill dusky green, blackish at the tip; legs dingy

The bill is long and slender, and the front toes are partly joined

Field Identification.—A solitary Sandpiper found in similar places to the Common Sandpiper but distinguished from it by the larger size, much darker upper parts, and by the conspicuous white tall barred in the middle towards the end with dark brown. It rises with a distinctive loud whistle. In the hand it may be identified by its peculiar musky smell.

Distribution.—The Creen Sandpiper breeds in Europe and Asia north of a line roughly through Germany, Boberini, Gollicia, and across Russis to Transcaspia and Turkestan. In winter it migrates south to Africa, India, China and the Maley Archipelago. At this season it is very common in the plains of Northern India, though less abundant in the South. In the Humayas it is a passage mignan, haling at water at any elevation. It commences to arrive in India at the end of July, and leaves again by the beginning of May. A few mon-breeding brids summer in India.

non-breeding inter-The Wood-Sandpiper (*Tringa glareola*) found throughout India in winter is very similar to the Green Sandpiper. It differs chiefly in its slighter build and in the paler coloration and larger spotting of the upper parts so that in the field it does not appear so conspicuously black and white. The fact that the Wood-Sandpiper collects freely into flocks and the sharp alarm-note giff giff, repeated by several birds till it becomes a chittering whistle, should enable the two species to be distinguished fairly readily.

Habits, etc.—Except when on migration it sometimes collects into parties of three or four individuals, the Green Sandpiper is a feed along the margins of any pond or tank however small, visiting also iheels, irrigation channels and casual flood water; salt tidal waters, however, it avoids. It feeds along the edge of the water in the same manner and often the same place with the Common Sandpiper, its tail incessantly wagging up and down. It is a curious mixture of confidence and shyness, feeding busily in the close neighbourhood of man until disturbed, and then becoming wild and difficult of approach. It rises with a clear loud whistle ti-tiu, zigzagging sharply in its flight at first and then mounting high and flying right away or circling in the sky like a Snipe. Individuals have marked predilections

for particular patches of water, and may be found at them day after day. The Wood-Sandpiper and the Green Sandpiper between them provide a large proportion of the small unidentified waders which

the sportsman in India is apt to describe collectively as "Snippets," As indicated above, the Green Sandpiper does not breed within our limits. In its northern summer haunts it nests in marshy forests from April to July, laying four eggs in the deserted nests of squirrels, thrushes and pigeons up in trees.

The eggs are pyriform, pale greenish or buff in ground-colour, spotted with purplish-brown and ashy-grey.

In size they average about 1.5 by 1.1 inches,

THE GREENSHANK

TRINGA NEBULARIA (Gunner)

Description.- Length 14 inches. Sexes alike. Winter plumage: Top of the head and the back and sides of the neck blackish-brown, the feathers broadly edged with white; back and wings ashy-brown edged with black and white and dark-shafted; outer flight-feathers blackish, inner flight-feathers ashy-brown, all edged with whitish; lower back, rump and tail white, the central tail-feathers irregularly, banded with dark brown, the bands dying away on the outer feathers; a line over the eye and the area round the beak whitish; whole lower plumage white.

In summer plumage the head is streaked with brown and the fore-neck and sides of the breast are spotted with brown; the feathers of the back have broad black centres.

Iris brown; bill dark olive-brown, blackish at the tip; legs

Field Identification .- A solitary wader found about all types of water; grev and brown above, white below, to be distinguished from the other common waders by the green legs, large size, grever colour and the conspicuous whiteness of the lower back, rump and tail. The

Distribution.-Breeds in the northern portions of Europe and Asia, passes on migration through temperate Europe and Asia, and winters in Africa, tropical Asia, Australia, Tasmania and New Zealand.

The slightly smaller Redshank (Tringa totanus) and Dusky Redshank (Tringa erythropus), found throughout India-the latter mostly in the north-are easily distinguished by their orange-red legs. The plumage, assumed before it leaves India. In winter dress it shows less white in the expanded wing than the Common Redshank, owing to the secondaries being barred brown and white instead of pure white.

winter visitors to the plains, found in small flocks about shallow water, but they are usually in winter plumage though with sometimes slight traces of the remarkable ruff and lappets of the male breeding plumage.

Habits, etc.-The Greenshank is usually found in India, except utters a loud alarm whistle, a mellow but plaintive thew-thew-tewthe mud for which its uptilted bill is not very suitable, but picks minute life from the surface of the mud or water.

In the north it breeds from May onwards. The nest is a depression in the ground lined with a few leaves and bents, and it is usually placed by some object such as a stone or piece of wood which serves to mark the site of the nest. It is placed on open moorland country, often close to forest.

The clutch normally consists of four eggs. These are broad ovals, sharply pointed towards the smaller end, fine in texture with a fair gloss. The ground-colour is a warm buffy-stone, spotted and blotched with reddish-brown or chocolate and ash colour.

The eggs measure about 2.0 by 1.35 inches.

THE LITTLE STINT

EROLIA MINUTA (Leisler)

Description.—Length 6 inches. Sexes alike. Winter plumage:
A dark streak from the eye to the beak; area round base of bill, a streak above the eyes, and the entire lower plumage white, the sides of the breast usually brownish and striated; upper plumage bring the sides, more or less tinged will grey, the feathers with broad blackish shaftish stripes; wing-coverts darker brown with pale edges, and a white stripes; wing-coverts darker brown with pale edges, and a white wing-bro; quills blackish-brown, the innermost being largely white; the lower bay the coverts dark brown down the enter and whitish at the sides; central tail-feathers dark brown, the outer feathers light snowly brown.

In summer the upper plumage is black with broad rufous edges; the fore-neck and upper breast are tinged with dull rufous and indistinctly spotted with dark brown.

Iris brown; bill black; legs dull lead colour.

The bill is fairly long and slender; the wing long and pointed, the tail slightly graduated.

Field Identification.—A tiny wader, about the size of a Sparrow, found in parties and flocks about water. Upper plumage dusky,

Distribution.—The Little Stint breeds in Siberia and the North Russian tundras and in winter migrates to Africa and Southern Asia. At this season it is abundant in the well-watered parts of India and Ceylon; it commences to arrive about the beginning of August and departs again in April and early May.

The Dunlin (Erolia alpina), which winters in Northern India in some numbers, is larger with the beak longer and somewhat curved.

Habits, etc.—As we know it in India in winter, the Little Stint

is an eminently social species, consorting not only in folkes composed only of its own species, but also in company with its near relation Temminek's Stint and with larger waders like the Dunlin and Curlew-Sandpiper. These flocks are sometimes of considerable size, and

they are found both inland on rivers and jheels and also on the seacoast. The chief requirement is a broad and flat foreshore from and or sand on which the little birds feed at the water's edge, collecting minute insects, crustace and worms, and the seeds of various aquatic plants. They are invariably very busy, pattering along with their tiny feet in and out of the water, their heads down bushsy collecting their minute food from the surface of the mud. They are usually tame and allow a near approach. When disturbed they rise with a

Once on the wing the flight is very swift and strong; the birds dart along over the shore and water with a slightly erratic course, flashing dark and light by turns, as in unison they change their position, sometimes flying with one wing uppermost, sometimes the other, thus presenting the upper and lower surface alternately to the observer. Settling again they run rapidly for a few paces and then immediately start feeding as if there were no time to be lost.

Temminck's Stint (Evolia temminchii) may be distinguished from this bird in the field by the much darker upper parts, by the three pairs of white outer tail-feathers, and by the yellowish-olive legs. In Temminck's Stint the shafts of the primaries are brown except the first which is white; the Little Stint has the shafts of all the primaries

The Little Stint breeds at the end of June in grassy marshes in with validor leaves a cup-shaped depression in the swampy ground. The clutch consists of four eggs by the strong based on the swampy ground. The clutch consists of four eggs by the strong based on the swampy ground in the swampy ground the strong based on the swamp ground ground the swamp ground groun

The average size is 1.10 by 0.80 inches.

THE WOODCOCK

SCOLOPAX RUSTICOLA Linnæus

Description.—Length 14, inclus. Sexes alike. Upper plumage brownish-grey, irregularly berrack, motted and blotched with rations. How and black, and then from the bill to the eye, an imperfect black line below the eye and two broad black bands across the back of the heatest was a sex and the proper and the black with the eye and the other dark grey above and salvery white below and with rations spots on their edges; lower parts brownish-white, the clin unmarkel, larrest with narrow dark brown cross-bars which to some extent grow black and coalesce on the throat. There is a good deal of variation in colour, some birds greyer and others browner, and in size, but this is individual and not connected with age, sex or locality.

Iris blackish-brown; bill dusky-brown, livid at base of lower

mandible; legs fleshy-brown, claws blackish. Weight 8 to 134 ounces.

The bill is long and slender, grooved at the sides and pitted at the tip; tail fan-shaped; legs short with rather long toes.

Field Identification.—A dark-looking mottled bird, russet and black and grey, with rather rounded wings and a long bill pointing downwards, which is flushed suddenly from ground cover in open woodland and flies with a rapid twisting flight among the trees.

Distribution.—Found throughout Europe and Asia, breeding in the north and wintering in the south. In our area the Woodcock breeds in the Himalayas from 6000 feet upwards, no doubt to the limit of tree growth, from Chitral and Hazara as far east as Bhutan.

In winter between the beginning of October and the middle of March this species is to be found in the lower valleys and the foot-hills of the whole of the Himalayas, mostly at elevations from 4000 too Geet, but here and there down to the level of the plains. On the west they are also found sparingly in the North-west Frontier Province and North Baluchistan. On the east they are rather commoner in the hills and neighbouring plains of Assum.

The Woodcock is also a winter visitor to both the Eastern and Western Ghats at all heights, being best known as a game bird in the Nilgiris. Stragglers reach the hills of Ceylon. There are virtually no records from the area between the winter quarters in north and south India.

Habits, etc.-Owing to its crepuscular habits the Woodcock is seldom seen except by the sportsman who regards it as a special prize and therefore concentrates on its pursuit. It rests by day in brambles, bracken and other vegetation both in open ground and more usually under tree growth and in woods and spinneys. It flights at dusk with great regularity to its feeding grounds. These are along the sides of ditches and in boggy hollows where it rummages amongst the debris of dead leaves and vegetation or probes with its beak in the soft ground. Most forms of small invertebrate life, adult or larval, are welcome to it, but its staple food is undoubtedly earthworms. For these it probes in the ground, driving the beak in often up to the base. In the breeding season this routine is diversified by the display flight known as "roding" which is familiar to those who camp in the Himalayas. In this the male flies at dusk along the hill-sides above the tree-tops and high in the open across the smaller nullahs following a regular circuit again and again. Whilst roding the actual flight is fast though the wings appear to have a slow Owl-like action, and as the bird goes it utters a

low croaking sound or a thin tsiwick. When flushed by day the bird rises with a clatter of wings and dodges swiftly among the trees.

Few species can be more beautifully adapted to their mode of life. The long bill has its tip slightly swollen to accommodate a rich supply of sensory nerves. The ear has been shifted forward from the usual nosition to one close to the gape so that the bill must act as a telephone for it. Tactile sense and hearing thus help its random probings to discover the hidden earthworm, and when the worm is found its capture is assisted by the fact that the mandibles are very flexible at their tips. They can thus be opened sufficiently to capture the worm without the great effort involved if the whole of the beak had to be opened in the ground. The huge eyes, mark of a nocturnal creature -and the Woodcock may as well have the protection of darkness for the top of the skull. This gives a great range of vision in the normal the Woodcock has to hold its bill inclined downwards in flight and at rest. Finally, the beautifully marbled and barred plumage which ensures the invisibility of the bird as it rests on the ground by day amongst fallen leaves and dry stems also provides a perfect example of Protective Coloration. The minute first primary or outer flightfeather is the well-known "painting feather," a trophy beloved of

This species is also remarkable for the ability to transport its chicks from one place to another, flying with them held between the legs.

The breeding season in the Himalayas is from early May to late

The breeding season in the minascope of forest and is often placed in a damp ravine under or amongst fairly thick cover. It is merely a hollow scratched amongst dry leaves or bracken, enough of which is left to form a dry hed for the eggs.

The clutch consists of four eggs. Their shape is a broad blust oval sometimes rather pointed at the smaller end. The texture is fine with a certain amount of gloss. The ground-colour varies from pule creamy-white to warm buff. The markings, which are generally municrous towards the larger end and scanty cleavier, consist of large and small blotches of reddish-brown with secondary clouds and small blotches of reddish-brown with secondary clouds and

The measurement is about 1.75 by 1.30 inches.

THE COMMON SNIPE

CAPELLA GALLINAGO (Linnæus)

Description.—Sexes alike. Length 11 inches. Top of the head black with a broad buffst-white band down the centre and a whitish stripe above each eye; chin and sides of the best faces, and upper breast buff streaked with dark brown 1; back black we faces, and upper breast buff streaked with dark brown; back black we back fringed and barred with white; rump and upper tail-overts rule of the dark through the with black; wings dark brown, the feathers more of will marked with black; wings dark brown, the feathers more plannage white, the under wing-coverts and flanks barred with brown; lower tail-overest banded buff and blackish.

Iris dark brown; bill blackish-brown, rufous-brown at base; legs olive-green.

Weight, 31 to 5 oz.

Bill long and slender, thickening at the end, where it is honeycombed with nerve cells; eyes set far back in the head with the orifice of the ear below their hinder edge; twelve to eighteen tail-feathers, but usually fourteen.

Field Identification.—A small long-beaked bird which springs suddenly with a harsh call out of marshy herbage and mounts high in the air with rapid twisting flight; plumage dark brown streaked and variegated with black, rufous and buff, the lower parts white.

Distribution.—The Common or Full Snipe (also called Fantal Snipe (contradiction to the appeals) is very widely distributed in Europe, Asia, Africa and Amer species) is very widely distributed in Europe, Asia, Africa and Amer species I received in State of the Common State of the State of the State of Europe from Scandingles I race. This breed over the greater part of Europe from Scandingles I race it is known to breed in Kashmir and the Santhal Parganas. In our in the State of the State of Sta

The Common Snipe commences to arrive in India in August, though not in numbers until October, and the great majority have gone again by the middle of May. This is the Snipe of the Upper Indo-Gangetic plain, of Sind and the Punjib, Rajputana, Guzerat, the United Provinces, and Northern Bengal. It is more numerous than the Pintail in the Peninsula north of the Godwari, but it is rare.

Habits, etc.—The Snipe in India is found in a variety of situations where soft mud and water are found combined with cover. Its favourite haunts vary in different localities and probably depend on some food factor which is at present unknown. In one part it haunts rice-fields to the virtual exclusion of ordinary marshy ground, in other places the reverse. As the large eye indicates it is mainly noturnal, but it also feeds a good deal in the early mornings and evenings. The reat of the day it drowess away in the shade of a trif of guess or rushes, and when the sun is particularly hot even leaves the jheels to shelter in the cool depths of huxrainet crops or patches of serul. It feeds on the seeds of marsh plants and small molluce, but a great portion of the food consists of minute worms and larve obtained by borning

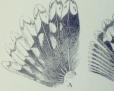


Fig. 90—Tails of (a) Common Snipe; (b) Pintail Snipe († nat. size)

in soft mud. To this end the long beak is specially adapted, furnished with sensitive nerves at the end and muscles which allow the terminal half to open when the base is closed. Another curious feature in the bird is the position of the orifice of the ear, but the explanation of this

During the nontide siests the Snipe is often very sluggish and unwilling to rise. At other times it is alsy anterive rising off the ground very suddenly with an alastmonte of stape-step for prival pronounced sharply with a nead twang); it ground, and if not minded to go for dropous. But if thorough sparred in montis into the sky at pace, though it is always reluctant to leave its chosen spor and often files round at a great height in wide circles, calling occasionally, and then if the coast seems clear a few coasts of the stape of the coast seems clear.

drops suddenly back into cover near the place where it originally rose. On the ground it is very jerky and nervous in its movements

During the breeding season it develops two special characteristics, the bird of perching on dead trees and posts where it stands nodding its head, and a nuptial display. In this if their is wide circles high over the nest place, uttering a call of disp-per, chip-per, and alternating this with sudden downward plunges in which a loud bleating sound is produced by the outermost pair of tail-feathers, which stand our separate to the others, and catch the air. This is known as "drumnium,"

In Kashmir the Snipe nests in May and June. The nest is a shallow cup of dried grass placed in the centre of a clump of thick

grass in marshy ground.

The clutch consists of four eggs. In shape they are broad ovals, very compressed and pointed towards the smaller end. The texture is smooth and close with a fair gloss. The ground-colour varies from pale greenish or blish to pale brown, blotched and spotted with various shades of sepia and ash colour. The markings tend to collect towards the broad end, but in many eggs they are disposed in lines with a distinct spiral twist owing to rotation of the egg in the oxiduct. They are very large for the size of the bird and measure about 160 by 117 ginches.

THE PINTALL SNIDE

CAPELLA STENURA (Bonaparte)

Description.—So similar to the Common Snipe that no separate description is required. It is slightly duller in colour with leas white in the wings. It may be identified at once by the tail which consists of twenty-six feathers, of which the outermost eight on each side are stiff, narrow and wire-like, and exhain the name of Pintail.

Weight, 3% to 5 oz

Field Identification.—Almost impossible to distinguish from the Common Snipe in the field except by a very slight difference in the

call and by the slower heavier flight,

Distribution.—Breeds in Eastern Siberia as far west as the Yonesel Valley, and migrates in winer to Southeastern Asia and the Malay Archipelago. The Pintail enters India over the Eastern Himalays, and is very common in Eastern and Southern India working scarce towards the north and west. In Sind a few bare been recorded, but it is unknown in the Punjah, North-west Fornier Powince, faluichistan and Kashmir. In Eastern India it arrives early in August and Leaves again by the end of April.

The Wood-Snipe (Capella nemoricola), a slightly larger and darker species with barred under parts, is best known in India as a winter visitor in small numbers to the hill ranges of the south.

The Jack-Snipe (Lymnocryptes minimus) is a common winter visitor to India, and a scarce one in Ceylon and Burma. It is readily identified by its small size, wedged-shaped tail of twelve pointed feathers, and the patches of glossy green on the upper plumage.

Habit, etc.—The Pintul Stape is found in India, Iliée the Common Shipe and in many areas in company with it, in every type of marshy and flooded ground where soft mud combines with cover. It is, however, also occasionally found in dry grass, subbles or low seruls, and this difference is due to the fact that the Pintuli has not such a highly specialised bill as the Common Snipe, and therefore feeds less on worms and more on inacets, larves and mollusca. On the wing the Pintuli is a heavier and darket-looking bird, and there is a little difference in the alarm-call with which it rese; the flight also is not so swift. These differences are, lowever, very slight and only to be

In Eastern Siberia the Pintail breeds about June. The courting display appears to be very similar to that of the Common Snipe, while the nest and eggs also closely resemble those of the better-known

THE PAINTED SNIPE

Rostratula benghalensis (Linnæus)

Description.—Longth, male 10 inches, female 11 inches, Male: Upper plumage olicascous-brown indistanctly barred with blackish escapilated inner wing-coverts with bread, dark green bars edged to be back, and another behind the eye and encircling it; a broad but bland down the middle of the crown cache is the back; on the terriaries and wing-coverts, buff black-edged bands come in and pass externally into aports, wing-quille bluish-grey finely barred with back and compressingly entry and the blaish-grey finely barred with back and compressingly sported and faintly tipped with but?, chin whitish, sported and faintly tipped with but?, chin whitish, encel, throat and breast brown streaked with white, defined with a blacking orget; lower plumage white carried with a blacking orget; lower plumage white call and a harder lines; sides on each side behind the gorget to plut the buff shoulder lines; sides

Female: A broad buff band down the middle of the crown; a white band behind the eye and encircling it; remainder of head and neck dull chestnut, becoming lighter towards the throat and

darkening towards a blackish pectoral band; mantle grey washed with olive and narrowly barred with blackish; a broad buff band down each side of the back; a tuft of pure white lanceolate feathers underlying the scapulars; wing-coverts and inner flight-feathers bright olive-green closely barred with black; wing-quills, rump and tail and remainder of lower plumage as in the male.

Iris brown; bill pale fleshy-brown, darker towards the tip; less

Weight, male 3.5 to 4.9 oz., female 4.4 to 6.4 oz.

Bill long and slender, slightly swollen and bent downwards at the tip; legs with long toes, the tibia partly naked; wings short. broad and ample.



Fig. 91-Painted Snipe (nat. size)

Field Identification.-Heavy Rail-like flight, wonderfully painted plumage and clumsy build distinguish it from all other waders; the buff band along the crown and the heavy spectacle markings are distinctive

Distribution.—The Painted Snipe is very widely distributed in Africa, Asia, Australia and Tasmania, the birds from the two latter places being separated from the typical form as another subspecies.

In India it is found practically throughout the country, occurring even in the Himalayas and other mountain ranges up to 5000 feet wherever suitable swamps occur. In the main a resident species, it is also a local migrant.

Habits, etc.-The Painted Snipe is found in swampy ground in jheels and along the edges of water channels where small patches of open water alternate with heavy cover. In such places they are found singly or in parties of ten to a dozen birds which lie closely and are flushed with difficulty. They rise from the ground heavily

like a Rail, with trailing legs that are not tucked into place until the bird has flown several yards, and they fly with heavy laborious action till they drop back into cover a short distance away; at the first opportunity they run back to the spot whence they were flushed. In habits they are largely crepuscular, feeding morning and evening and perhaps at night as well, and resting during the warmer hours. When feeding they often leave the swampy ground and work out into the open on to grassland or plough, running back to cover with lowered heads and shame-faced demeanour if disturbed. When necessary they can swim excellently.

The exact relationship of this species is not clear, but it is certainly not a true Snipe, and as a game-bird is neither worth shooting nor eating and should always be spared.

The call is a rather deep mellow note resembling the noise made by blowing into the mouth of a bottle, without blowing hard enough to produce a whistle.

As in the case of the Button-Quails, where also the females are larger and brighter than the males, the Painted Snipe is believed but it is apparently the case that the birds do not pair except very temporarily. As soon as the eggs are laid the male bird proceeds to incubate them and rear the chicks, while the female again pairs with another male who in turn is also provided with similar duties. To this state of affairs is attributed the fact that males are more numerous than females, and also the prolonged breeding season which extends virtually throughout the year, wherever conditions of food and water are suitable.

Another remarkable feature of the bird is its display, used both in courtship and as a protection against danger. In this the wings are spread and brought forward to beyond the top of the beak, while the tail is simultaneously expanded, until the bird becomes a patch of brightly-spotted markings. This is accompanied by a hissing, swearing note.

The nest is a compact flat pad, slightly depressed in the centre. of grass, straw, rushes and weeds, placed on the ground or in a tuft of but occasionally out in a dry field. The clutch consists of four eggs.

The egg is a moderately broad oval, with the small end rather compressed and lengthened. The shell is very hard and of a close bright yellow, thickly and boldly blotched and streaked with an intensely

deep and rich brown. The egg measures about 1.40 by 0.99 inches,

THE BLACK-HEADED GILL

Description.-Length 16 inches. Sexes alike. Winter plumage: Head, neck, rump, tail and entire lower plumage white, a small brown mark in front of the eye and another behind the ear; back and wings pearl-grey, the outer flight-feathers with their coverts white and their tips conspicuously marked with black.

In summer plumage a deep brown hood is assumed covering the

whole head and upper neck.

Iris dark brown ; eye-rims, bill and legs deep red.

The bill is stout and compressed, the upper mandible curved and bent down over the tip of the lower mandible which has a conspicuous angle below near the end; wings long, exceeding the square tail;

hind toe small; front toes fully webbed.

Field Identification.-A typical small Gull, easily recognised in winter plumage by the dark spot behind the ear and the white edge to the front of the end of the wing. It must, however, be distinguished from the Brown-headed Gull (Larus brunneicephalus), also common on the Indian coasts, a larger bird in which the point of the wing is black enclosing white patches called " mirrors."

Distribution.—This Gull breeds in temperate Europe, southwards to the Mediterranean, and also in Western Asia. In winter it is also found in Northern Africa and Southern Asia as far south as India. In Eastern Siberia, China, Japan and the Philippines it is replaced by

another race.

In India it commences to arrive in August and leaves towards the end of March, though some birds remain until early May. It is common in Kashmir and about the coasts and rivers of Northern India; on the west coast it is found as far south as Travancore.

Habits, etc.—This familiar European Gull is found in India both

on the sea-coasts and inland, about tanks, iheels, and the larger

On the sea-coast it is most common in and around the harbours, where it is very much of a scavenger about the shipping, taking dead fish, crustacea and garbage of all kinds from the surface of the water or from where the tides have thrown it up along the shore. It cannot dive and, therefore, seldom catches live fish. Like all Gulls, it is a bird of very active habits and strong flight, flying and wheeling backwards and forwards over the water with an untiring buoyancy that is its essential characteristic. Numbers are found together and constitute large loosely-connected flocks which, when not feeding, rest either on the sea or sands and sometimes on level ground inland.

The cry is a querulous scream, kree-ah, and very little excites the birds

Inland its distribution is somewhat difficult to understand. At some of the larger lakes it may be met with during the winter months, but it is probably safe to say that the bird is usually found inland while migrating; then also it is found in flocks which travel up the course of the larger rivers and break their stay for a short time on big tanks and lakes. In such places its food is largely of an animal nature, including all the smaller forms of invertebrate life that come within

In Europe the breeding season is from April onwards. The bird breeds in large colonies which are found in various situations on island-studded lakes, on sand-hills by the sea, in bogs and marshes often far inland. The nests are heaps of vegetable matter with a hollow for the eggs, and they are built on the ground or in reed-beds with no attempt at concealment. The eggs are frequently collected for human food and are freely sold under the name of Plover's

The normal clutch consists of three eggs, but two to four are found. The egg is a broad oval, rather pointed at one end. The ground-colour varies from light stone to dark brown, spotted and blotched with deep blackish-brown and purplish.

The egg measures about 2.05 by 1.5 inches.

THE WHISKERED TERN

Description.-Length 10 inches. Sexes alike. The crown of the head greyish streaked with black, becoming more marked on the nape, head, neck and lower parts white; remainder of upper plumage light ashy-grey, the flight-feathers being darker and with their concealed

In summer plumage the top and sides of the head are black and the ashy-grey of the upper plumage becomes darker; fore-neck and breast dark grey passing into sooty black on the abdomen.

Iris brown ; bill red ; legs dull red.

The bill is short, slight and marginally compressed. The feet are weak with deeply-scalloped webs between the toes; the tail is short and very slightly forked, and the closed wings project beyond it.

black cap and belly, which feeds in companies over water or ricefields, delicately capturing insects; distinguish in the field from the other common inland Terns by the short, scarcely forked tail, and in the hand by the very slight webs between the toes.

Distribution.—The Whiskered Tern is found in several races in the temperate parts of Europe, the whole of Africa, Southern Asia, the Malay Archipelago and Australia. The breeding race of India has been separated as smaller than the typical European bird under the name of Ch. h. indica. It breeds in Kashmir and in the United Provinces, and at other seasons may be found in suitable places throughout India, Ceylon and Burma. Another race, Ch. h. javanica, in which the lower parts are virtually black in breeding plumage, breeds in Assam and Burma and eastwards through the Malay States to Java, Borneo and Celebes. A migrant species, but its movements have not been worked out

Habits, etc.—This species is one of the Marsh Terns as opposed to the River and Sea Terns. Except on migration, when it travels along the course of rivers, it lives and breeds on lakes and tanks, preferably those which are partly overgrown with lotus and other aquatic vegetation; though it strays a good deal to rice-fields, small ponds and inundated areas in search of the insects which form the greater

part of its food.

These birds feed on the wing in small companies in the most methodical manner, starting at one end of the jheel and working up against wind to the far end; as they go each bird dips down incessantly to pick food off the water or weeds. Dragon-flies and their larvæ appear to be their staple food, but water-beetles and other aquatic insects are freely taken. Arrived at the end of the jheel the flock fliesback to the start again; those that are satisfied rest on a rocky islet or the bough of some water-logged fallen tree and preen their plumage; the unsatisfied commence another beat in search of further food.

The breeding season lasts from June to August. The nest is a slight platform of rushes and long trailers of weed wound round and round in circular form and placed on the broad leaves of lotus plants with which they are firmly intertwined. It is placed out in deep water in the centre of the chosen lake or jheel, free of the reeds and

The number of eggs varies from two to four, but the normal clutch probably consists of three eggs.

The egg is a moderately broad oval, a good deal pointed at one end; the texture is fine and close but there is little gloss. The groundcolour is generally a pale, clear olive-green, but it varies also from pale olive stone-colour to rich blue-green. The markings consist of streaks, spots and blotches of deep blackish-brown or reddish-brown, with secondary markings of pale purplish-brown. There is a good deal of variation in the character and extent of these markings.

The egg measures about 1.51 by 1.09 inches.

THE COMMON RIVER TERN

STERNA AURANTIA Gray

Description.-Length 16 inches. Sexes alike. Winter plumage: Crown dull grey; upper plumage french-grey, paling to pearl-grey, on the rump and tail; lower plumage very delicate greyish-white.

In summer plumage the top and sides of the head are black glossed with green, with a whitish spot under each eye.

Iris brown; bill deep yellow; legs red.



Fig. 02-Common River Tern (1 nat. size)

Bill long, slender and compressed; feet small with the front toes webbed; wings and tail long, the latter deeply forked.

Field Identification.-A very graceful grey and white bird with long pointed wings and a long deeply-forked tail and usually a black cap, which is invariably found by water. For differences from other

Terns see under the next species.

Distribution.-This Tern is found throughout India and Burma and in the Malay Peninsula. It is not found in Baluchistan or in the mountain areas, but is otherwise fairly generally distributed throughout India. It is a resident species, though individuals wander about a good deal according to the water-supply.

Habits etc.—This Tern is essentially a river bird occurring singly or in small parties about all the rivers of India where they flow through the plains, and leaving them only for temporary visits to jheels and tanks. Only stragglers ever visit tidal waters. These Terns spend the greater portion of their time fishing. They fly along some 20 to 20 feet above the surface of the water, the strong, deep, regular beats of the long pointed wings producing a distinctive but slightly jerky flight, and as they fly their keen eyes watch the water below for shoals of the small fishes on which they feed. The actual capture of a fish is effected by a perpendicular drop into the water and it is eaten on the wing, swallowed invariably head foremost. Once a suitable fishing ground is discovered the direct purposeful flight is abandoned for graceful wheeling curves which show to the full the powers of flight that have earned the marine Terns their name of Sea-Swallows, After their appetites are satisfied they sit in parties on the sand-banks near the water's edge, often in company with other species. They never perch on trees, nor do they settle on the water or swim.

The River Tern breeds from March till May on the bare, glittering sand-banks of the rivers, generally on islands, but also along the shore. Several pairs generally breed near one another, and the same sand-banks are usually tenanted by colonies of Skimmers, Little Insumers, Little Insumers, Little Insumers, Little Great Stone-Plower, the Spurving-Plower, and the Little Ring-Plower.

The nest is a small depression scraped in the sand which is at this season almost too hot to touch with the naked hand. During the daytime therefore the Terns are very casual about brooding their eggs and spend much of their time fishing in the vicinity. A human being has, however, only to set foot on the sand-bank for a scene of great excitement to ensue. Sitting birds are from the nests, others arrive from the river, and while the sand is covered with Pratincoles with Terns fashing belockwarts and for overthe university and the round overhead, their shrill plaintive cries indicating only too surely the presence of the eggs and offspring they seek to protect.

The clutch consists of two or three eggs. They are broad ovals in slape, very snooth and fine in texture with little gloss. The ground is a delicate greenish-grey or buffy stone-colour. This is covered with small blotches, lines and streaks of dark brown, and with secondary markings underlying them of clouds and streaks of pale inkynurable.

In size they average about 1-65 by 1-25 inches.

THE BLACK-BELLIED TERN

STERNA MELANOGASTER Terminck (Plate xix, Fig. 4, opposite page 456)

Description.—Length 13 inches. Sexes alike. Top and sides of the head black; upper plumage ashy-grey slightly tinged with brown on the innermost light-feathers, the outer light-feathers froated and whitish with their inner webs brownish; tail paler grey than the back, the long outer feathers white; lower plumage white on the chin gradually passing through grey on the neck into chocolate and then into black from the breast to the tail; vising-lining white.

For a short period after breeding the black cap and dark under rts become white.

Iris dark brown; bill orange-yellow; legs orange-red.

Field Identification.—Five species of Tern are found commonly inland in winter in India. All may have the cap black according to age and season. The Whiskered Tern may at once be separated from the other four by the short almost square tail and the deeply-scalloped webs of the feet. It shares with the Black-bellied Tern the further

The other four species have long deeply-forked tails and fullywebbed feet. The black bill and lega distinguish for Gull-billed Tem (Celosheldton milatica) at all seasons, while the Little Tem (Sterna albifyran) may always be known by its small size. The others being thus eliminated, it should always be possible to separate the River Term and Black-bellied Tem by size and build alone, the former being a heavier and more clumsy bird, while the latter generally has the black belly or some traces of it.

Distribution.—This Tern is peculiar to India, Burma and Ceylon.
In India its western boundary appears to be the Indius Valley, and it is not found in the Himalayas above 2500 feet. It is very abundant in Northern India but less common in the South. A resident species, and the state of the Property of

Habits, etc.—The habits of the Black-belled Tern are very similar to those of the Common River Tern, in company with which it is generally found. In main habitat is in the beds of the big rivers of the plains, where it fabes in the channels and nests upon the sandbanks, but it also freely viatis plant at table; it files and fishes singly and in parties. It has much the same flight and methods of fishing as the River Tern, but it is more of an adept at catching insects, lifting them from the surface of water with a gentle glide or chasing them over land in the evenings. The flight is swift enough for the

capture of tiger-beetles, and grasshoppers and termites are eaten in quantities. Fish are swallowed head first, so that the sharp fins fold against the body and do not harm the gullet. Prawns for the same reason are swallowed tail first, as their sharp points are the legs and mandibles which project forwards.

As indicated under the last species it breeds on the sand-banks of the larger rivers from March to May, sometimes solitary, but

usually in the mixed colonies with other species.

The nest is a mere scrape in the sand, and the clutch in this species varies from two to four eggs. The eggs may generally be distinguished from those of the River Tern by their smaller size and more elongated shape. They are broad ovals, and generally without gloss. The ground-colour is cream or buffy-brown of various shades, speckled, streaked and spotted, and with a few blotches of reddish or purplish brown: there are also faint secondary markings of spots, clouds and streaks of pale purple.

In size they average about 1.25 by 0.95 inches.

THE INDIAN SKIMMER

RHYNCHOPS ALBICOLLIS Swainson

Description .- Length 17 inches. Sexes alike. The top of the head blackish-brown; back and wings blackish-brown, the inner flight-feathers broadly tipped with white; a line down the centre of the rump to the inner webs of the central tail-feathers blackish-brown; remainder of plumage white.

Iris brown; bill deep orange, the tips of the mandibles yellow;

legs bright vermilion.

The curious bill is described below; wings very long and pointed, tail short and slightly forked : feet small and webbed

Field Identification .- A white Tern-like bird, with a black cap and back and immensely large black wings, which can be mistaken

for nothing else, as the curious beak and the feeding habits correlated with it are unique. It occurs only by water.

Distribution.-Found on the larger rivers of India and Burma, extending to the west as far as Persian Baluchistan. A local migrant. Habits, etc.—The Skimmer or Scissorbill is purely a water-bird,

found almost entirely on the larger, broader rivers where their course is placid, flowing smoothly between sand-banks. Occasionally it visits jheels and tanks in the neighbourhood of such rivers, but only when there is a clear expanse of water free of weeds. For of all the curious and specialised birds of India the Skimmer is one of the most curious and highly specialised. In appearance at a distance it would pass for a very clumsy black and white Tern, remarkable for the expanse of wing and the deep deliberate flapping of its flight; but at a short distance attention is attracted by the curious bill. Of this both mandibles are deep and greatly compressed, much as if two knife-blades had been set edge to edge; the upper mandible is considerably shorter than the lower which projects beyond it. The reason for the shape of this curious organ is soon apparent, as one cannot watch a party of Skimmers on the wing for long without seeing it in use. Singly or in parties of ten to twenty birds they fly slowly backwards and forwards along the surface of the water as if they were ploughing it, the elongated portion of the lower mandible cutting through the surface, leaving scarcely a ripple. The older writers attributed this habit to a meaningless fascination in disturbing the placid surface of the waters; but the more prosaic habit of mind of the modern naturalist has ascertained by observation that the bird is



catching fish. It skims with the beak wide open in shallow water, the lower mandible below the water, the upper mandible clear of the surface; a small fish strikes the razor edge and runs up the incline. and the jaws close swiftly across the fish, held crossways firmly in three cutting edges: for an examination of the beak shows that the two mandibles close together in the same fashion as a curling-iron. The nestling Scissorsbill has the perfectly normal bill of a young

The breeding season lasts from March to May. The nest is a mere scrape on the bare sand-banks of the rivers that this species frequents, and the colonies are always shared by Terns and Pratincoles. When disturbed the birds flap lazily round in the neighbourhood uttering all the while a ceaseless twittering cry.

The full clutch consists of four eggs.

The egg is a moderately broad oval, more or less pointed towards the smaller end; the texture is fine and compact and there is a slight

The ground-colour is variable, delicate greenish or grevish-white pale salmon-colour or pale buff. The markings consist of bold blotches and streaks, chiefly the latter, of rich umber-chocolate or reddishinky-purple; there is as a rule a considerable twist apparent in the markings of the eggs as if they had been deposited while the egg was

The average size is about 1.60 by 1.18 inches.

THE SPOTTED-BILLED PELICAN

Description.-Length 5 feet. Sexes alike. Full adult breeding plumage: White almost throughout, crown and neck feathers short and curly with their bases dark brown; lower back, rump, flanks, and a patch below the tail vinaceous-pink; a slight crest and a mane of larger feathers down the back of the neck brownish; the flightfeathers blackish-brown, growing white inwardly, the larger wing and upper tail-coverts with black shafts; tail light ashy-brown.

In other plumages the vinaceous-pink tinge is lacking and the

plumage is much sullied with brown.

Iris white or yellowish, bare skin round the eye yellow and livid; bill pinkish-yellow, the sides of the upper mandible with large bluishblack spots, tip of the mandibles orange-yellow; pouch dull purple, blotched and spotted with bluish-black; legs dark brown.

The upper mandible is long, flat and boat-shaped, terminating in a hooked nail; the lower mandible consists of two flexible arches which support a huge elastic pouch; body huge and squat with short

Field Identification,-The huge squat Pelican with its enormous beak and elastic pouch is familiar to every one through picture, story and Zoo, though the identification of the various species in the field is a matter of difficulty. In flight the birds appear white with the points of the wings black.

Distribution.- Throughout the better watered tracts of India, Ceylon, and Burma and the whole Oriental region. A migratory bird.

Two other species of very similar appearance, the Rosy Pelican (Pelecanus onocrocotalus) and the Dalmatian Pelican (Pelecanus crispus), are found in North-western and Northern India respectively.

Habits, etc.—This Pelican is purely a water-bird, being found wherever there are large expanses of water suitable for it to fish in. It is found singly or in small parties, but also often in large flocks. It is seldom seen on land, as it is a bad and clumsy walker, but in the water it swims well and buoyantly. The food consists of fish which are caught not by diving, of which the bird is incapable, but by scoops of the great lower mandible with its pendant and elastic pouch of naked membrane which acts as an ideal landing-net. When in flocks Pelicans capture their prey by forming a line or lines across



the water and driving the fish before them into shallow water by beating the water with their wings.

On the wing the Pelican flies well, with the neck bent and the head close to the shoulders, the great wings beating in rhythmic unison. The flocks fly in regular lines or wedges like Geese and often ascend to a great height in the air.

In India the Pelican is only known to breed in the Madras Presidency, where a few small colonies may be found in the first half of the year. Other colonies breed in Ceylon, but the majority of this species nest in Burma where they collect for the purpose in November. Oates has described a vast breeding colony in the forests of the Sittano in Burma, which he calculated to be twenty miles long and five miles broad. Here this Pelican was nesting in company with Adjutants, and the total number of birds was estimated in millions. The huge nests were composed entirely of sticks without lining, and three to fifteen nests would be placed in a single tree at the height of 100 feet from the ground. The most striking point about this Pelicanry was the complete silence that prevailed, save for the whistle of the wings of birds flying far overhead which sounded like the music of an æolian

The clutch consists of three eggs. The egg is long and narrow, equally pointed at both ends. The true shell is smooth and white but it is covered with an outer coating of chalky texture. This, when the egg is fresh, is pure white, but it gradually becomes stained, and is dark brown or black by the time that the chick hatches.

The egg measures from 2.65 to 3.3 inches in length by about

THE LITTLE CORMORANT

PHALACROCORAX NIGER (Vieillot)

Description.-Length 20 inches. Sexes alike. Black throughout with a slight green gloss; a white patch bordering the throat pouch; the scapulars and wing-coverts are dark silvery-grey with broad black

borders to the feathers. In the breeding season the white throat is lost, but scattered white feathers grow on the head and a few white hair-like plumes on the

sides of the neck. Iris greenish-brown; bill brown, livid purple while breeding;

evelids and the gular pouch and legs blackish, livid while breeding. Bill rather slender and compressed, rounded and sharply hooked at the end; a gular pouch under the bill; tail wedge-shaped; toes flattened and webbed.

Field Identification .- A water-bird, dark glossy black, with an upright carriage and a habit of sitting on stumps and trees with the wings outspread. Swims and dives excellently and flies well. Distinguish by small size from other Cormorants,

Distribution.-Found throughout India, Ceylon, Burma, the Malay Peninsula, Sumatra, and Borneo. In India it is not found



in the Himalayas or other hill ranges, in Baluchistan, or in the extreme north-west of the Punjab or in the North-west Frontier Province, but it is otherwise found wherever suitable water exists. It is a resident

The Common Cormorant (Phalacrocorax carbo), in addition to being much larger, is distinguished in the breeding season by more white on the head and neck and a large white patch on each flank. Immature birds are browner with white under parts. It is found

Habits, etc.—This is the commonest species of Cormorant in India and is often very abundant. Although occasionally found on



the sea-coast it is a bird of fresh water, preferring marshes and tanks even to rivers. It is found singly and in parties, and in suitable localities large numbers collect though not as one flock; they roost

in company in trees. The Little Cormorant lives on small crabs, tadpoles, frogs and fish which it catches under water, swimming and diving with the utmost ease; compared with a duck it swims very low in the water, and at a hint of danger it can submerge leaving only the head and neck above the surface like a periscope. It rises with difficulty from the water with a long flapping struggle, but once on the wing flies strongly and swiftly with the head and neck outstretched in front and the feet stretched straight behind. Out of the water it perches both on the ground and on rocks and on trees, but its favourite perch is a

low stump sticking out of water; it stands very upright and has the family habit of sitting for long periods with the wings outstretched to eatch the sun.

The breeding season in India is from July to September, and the birds breed in colonies often of great size. The nest is a flatistic up of sticks which is comparatively small for the size of the bird, and sometimes, indeed, was originally the property of a cross or egret; old nests are repaired from year to year. They are occasionally placed in reed-beds, but the majority of colonies are built in trees standing in water or in its immediate vicinity by plecls and tanks. A number of nests may be found in one tree, and the trees are often of small size.

The clutch consists of three to five eggs.

The eggs are long ovals, pointed towards the small end; the shell is firm and hard, greenish-blue in colour, but covered with an exterior chalky coating, which, when laid, is white or bluish-white, but is soon stained to yellow or brown. Portions of this chalky coat flake off in the next, revealing the greenish-blue shell beneath.

In size the eggs average about 1.75 by 1.15 inches.

THE INDIAN DARTER

ANHINGA MELANOGASTER Pennant

Description.—Length 3 feet. Sexes alike. Crown and neck prown, all the feathers with pale edges, the back of the neck blackish; a fine line over the eye, chin, throat and a separate line half-way down the sides of the neck white; upper back black with brown edges; remainder of the plumage glossy black, the wing-feathers nearest the body and the coverts with silvery-white shaft-streaks.

Íris yellow; bill blackish-brown, lower mandible yellowish; legs black.

Bill straight, slender and sharply pointed; neck long and slender; scapulars long and lanceolate; tail long and wedge-shaped; feet webbed.

Field Identification.—A large black water-bird with long snaky neck and spear-like beak, and white on the throat and neck; swims, dives and flies well and perches on trees.

Distribution.—Throughout the Oriental region. This bird is

found throughout India in suitable localities from the valley of the Indus eastward, but it does not ascend the hills. A resident species. Habits, etc.—The Datter frequency frequency for the party frequency frequency.

Habits, etc.—The Darter frequents fresh water, whether rivers, lakes or jheels, the only requisite being that the water should be deep

enough for it to swim and dive in. It does not visit the sea, though it may be found in tidal estuaries and creeks. It is a social bird, found in parties at all seasons and it has a predilection for the society of the Little Cormorant, both species breeding, fishing and resting in company.

This bird is a highly specialised form whose whole structure and habits are adapted to one end, the capture of fish. It is a most wonderful swimmer and diver. It swims very low in the water, with, as a rule, only its head and neck uncovered; and as it moves along the head turns from side to side and the long neck twists and bends with



Fig. 96-Indian Darter (1 nat. size)

anake-like movements that at once suggest the name of Snake-bird, so often applied to the species. As a fish rises or swins past the beak darts forward with the velocity of a spring impaling it or seizing it between the mandibles; the sudden rapier-like thrust is explained by a bend in the neck at the Ski and oth vertebra which straightens for the thrust and acts as a spring. It follows fish and captures them under water, diving whilst swimming or with a plunge from its perch. It emerges with the captured fish in its beak, throws it up into the air and catches it in position to swallow head foremost.

When sated these birds emerge from the water and settle on trees and stumps in company with Cormorants, and, like them, hang out their wings to dry. When approached they crane their long necks and (iny snake-like heads at the intruder in a most ridicalous manner, (III to near an approach planting to the long to the control of the long to the long to the long to the long to the ground plantings. Close to the ground the long to t

The breeding season is in January and February or from June to August according to the influence of the monsoon in different parts of India. The birds build in colonies in company with Cormorants and Herons, constructing rough unlined stick nests in clumps of trees; the same sites and nests are used year after year.

The clutch consists of three or four eggs.

The egg is a much elongated oval, more or less pointed towards one end; the true shell is of a somewhat pale greenish-blue tint, only visible in places after the flaking off of a superimposed chalky greenish-white coating which is gradually stained brown as incubation proceeds.

The egg measures about 2.15 by 1.37 inches.

THE WHITE IBIS

THRESKIORNIS MELANOCEPHALUS (Latham)

Description.—Length 30 inches. Sexes alike. Head and neck naked, dark bluish-black in colour; the plumage is white throughout, the tips of the primaries mottled with brown and the ends of the tertiaries slaty-grey.

In breeding plumage these grey tertiaries are longer and looser in texture, and the feathers round the base of the neck and on the upper breast become more plume-like.

Iris red-brown : bill black : legs glossy black.

The bill is long, slender and curved; the long toes are edged with a membrane which makes them slightly webbed at the base.

Field Identification.—A large white bird with a long curved black beak, long black legs and a naked black head and neck. Found about water.

Distribution.—Throughout India, Ceylon and Burma, and also in China and Southern Japan. It is found everywhere in India, in suitable localities as far westwards as the Jhelum River in the Punjah and the Indus in Sind, and in Las Belas, but it does not ascend any of the hill ranges. A resident species, wandering locally in different years.

Habits, etc.—The White Ibis is a bird of inland waters, chiefly

preferring the larger marshes and jheels where wide areas of water are covered with bushes and trees; it is also found about rivers, tanks and inundated cultivation, and near such places also wanders' on to the neighbouring grasslands. It is found in small parties



Fig. 97-Black Ibis and White Ibis (& nat. size)

which associate freely with other forms of Ibis and Storks. These birds wade about in the water or stalk along the edges of it collecting the molluses, crustaceans and similar organisms on which they feed; when sated they rest in little groups standing on the sand-banks or in aballow water or perched on favoured groups of trees. This species is said to have a peculiar bounding call, but it is as a rule silent. The breeding season lasts from June to August. The nests are built in small colonies of less than a dozen pairs which breed either by themselves or in company with Herons, Egrets and Cormorants; it is immaterial whether the locality chosen is in wild secluded jheels or on the outskirts of villages.

The nest is composed of sticks, unlined, but with a fairly deep hollow for the eggs; it is placed on small trees in jheels or on large

trees near villages.

The clutch varies from two to four eggs.

The egg is very variable in size and shape; typically it is a long, much pointed at the smaller end and rather chalky in texture. When freshly laid it is of a delicate bluish or greenish-white, but this soon stains to a dull and dirty brown. Occasional eggs are delicately spotted with yellowish-brown.

The average measurement is 2.50 by 1.70 inches.

THE BLACK IBIS

PSEUDIBIS PAPILLOSUS (Temminck)

Description.—Length 27, inches Sexes alike. Head naked, covered with black kain except for an area on the crown, which covered with black kain except for an area on the crown which the covered with red papille (hence the name Warty-headed Uhis some-times used); wings black, glossed with purplish and green, and with times used); wings black, glossed with purplish and green, and with a light greenfash gloss on the back plumage dark office-brown, with a slight greenfash gloss on the back plumage dark office-brown, with a slight greenfash gloss on the back plumage dark office-brown, which a slight greenfash gloss on the same plumage.

Iris dull orange-red; bill greenish-leaden; legs brick-red.

Bill long, slender and curved; the toes are bordered by a membrane

Field Identification.—A large black bird easily identified by the bare head, long curved beak and conspicuous white wing-patch:

perches on trees and feeds on the ground.

Distribution.—The Black Ibis is found from Continental India through Assum to parts of Burma, Siam and Cochin-China. It is divided into two races, of which we are concerned only with the typical form. This is found throughout the plains of India from roughly the valley of the Indias on the west to as far south as Mysor and east to Assum and Arrakam. It avoids the west coast of India and also Lower Burma. It is a resident species.

The Glossy Ibis (Plegadis falcinellus) is also common locally throughout India as a breeding species. This is a smaller species, blackish and chestnut in colour with metallic reflections and may

be known by the feathered head.

Habit, etc.—The Black lbb is less of a must bird than the White lbis, and is generally found in open country or in cultivation, feeding on the ground in pairs or parties. They appear to be less inclined to rest and meditate than the other large birds to which they are related, such as the White Ibis, Storks and Herons, and always are busily engaged in searching the ground for fallen grain, insects, worms, crustaces and similar food. They roost, as they breed, in trees, and they have regular lines of flight to and from the rooting places, thying in wedge-shaped formation like Gees and Cranes. The call is similar to that of a bird of prey, a screaming cry of two or three notes.

The breeding season is rather irregular from March to November, varying in different localities and also perhaps in different years.

The nest is a large structure of sticks, with the egg cavity lined at straw, grass, feathers and rags. It is built high on the top of a large tree, and though, as a rule, the nest is solitary, occasionally two or three may be found together. It is not unusual for old nests of the larger Rantorial birds to be adopted by this species.

The clutch consists of three or four eggs.

The egg is a moderately long oval, more or less pointed towards one end. The texture is rather coarse, and the colour is a beautiful sea-green; most eggs are unmarked, but a few are spotted, speckled or streaked with brown or yellowish-brown.

In size the egg averages 2.43 by 1.7 inches.

THE SPOONBILL

PLATALEA LEUCORODIA Linnæus

Description.—Length 33 inches. Sexes alike. Pure white throughout, a patch of cinnamon-buff on the lower fore-neck in adults. A creat of pointed and drooping plumes is assumed in the breeding

Iris red; bill black, yellowish towards the tip; a patch of bare yellow skin between the eye and the beak; bare skin on the throat reddish-yellow; legs black.

The bill is broad, long and flattened, expanding into a flat spoon at the tip; neck and legs long, the toes bordered by a membrane and webbed at the base.

Field Identification.—Found in parties about water; a tall white long-legged bird immediately identified by the black spoon-shaped bill.

Distribution.—Widely spread through Central and Southern Europe, in Africa and in Asia, the Spoonbill is divided into two races. The larger Eastern race, P. l. major, is found from Egypt through

Central Asia to India, Ceylon, Burma, China and Japan. It is found throughout India, except in the drier and the more hilly regions, and is a resident bird. The typical race is said to appear in India as a

Habits, etc.-The Spoonbill in India is found in flocks which rest by day on the bare margins of the larger more open iheels, the shores of tidal creeks, and the sand-banks of the rivers. They occasionally feed by day in company with the numbers of other water-



Fig. 98-Spoonbill (\$ nat. size)

birds that frequent similar situations; but more usually the flocks are to be seen standing at the edge of the water idly dozing in the sunlight, though not bereft of caution, and as evening falls they flight to the feeding grounds in shallow water. They travel in single file in long white gleaming lines at a considerable height above the ground; they fly with the long necks and legs extended, and move in a very regular and stately manner.

The food consists largely of vegetable substances, but all sorts of aquatic insects and their larvæ, frogs, molluses and small fish are also caten. The feeding action is most remarkable; the bird wades quickly through the water with its neck stretched out and the beak half-immersed, turning from side to side with a regular sweeping action like a man scything grass, so that the beak is passed sideways open through the water to close on anything palatable.

The only call is a low grunting note, inaudible save at close quarters,

The breeding season varies a good deal according to locality, but

it appears to last mainly from August to November. The Spoonbill nests in colonies which are often of considerable size and usually close to, but separate from, colonies of Ibises, Storks and other similar birds. These colonies build in large trees close to a lake or jheel, and it seems a matter of no moment to them whether the spot is lonely and secluded or in the middle of a village site.

The nest is a large massive platform of sticks, used and repaired

The usual clutch consists of four eggs, but five are sometimes laid. The egg is an elongated oval, much pointed towards the smaller end. The texture is somewhat coarse, slightly chalky and entirely without gloss. The ground-colour is white, not quite pure in tint, and the markings consist of smudged and ill-defined blotches and spots of brown of various shades sometimes dark and clear in tint, at other times feeble and half-washed out; these markings are mostly confined to the broad end, and are generally all of the same character on one egg.

The egg measures about 2.70 by 1.80 inches.

THE WHITE-NECKED STORK

DISSOURA EPISCOPUS (Boddaert)

Description.-Length 36 inches. Sexes alike, Crown black glossed with green; remainder of head and neck and the lower abdomen to and including the tail white; the rest of the plumage black glossed with purple and green.

Iris crimson; facial skin plumbeous; bill black, tinged in places Bill long, stout and pointed; neck and legs long, wings and tail

short; the three front toes are united by a web at the base; much bare skin about the base of the beak. Field Identification.-This large Stork can be confused with no other species owing to the distinctive plumage, the white neck contrast-

ing with the glossy black crown, back, breast and wings.

Distribution.-The White-necked Stork has a wide distribution through Africa, India, Ceylon and Burma, Siam, and the Malay the typical form is found in our area. This is found from the Salt Range in the north-west (though there is only one record for Sind, at Sukkur) practically throughout India. It is a resident

species.

Habits, etc.—This solemn-looking Stork is found singly, in pairs or in small parties in open well-watered country, frequenting flooded or irrigated land, small parties of narrsh, and rice-fleds, and in such situations it ascends the foot-bills of the Himalayas up to about 4,000 feet. It is very quiet and seedentary in its habits, for the most part standing about in meditation on the ground or feeding in company with other Storks and Ibises. Out of the breeding season it seldom



Fig. 99-White-necked Stork (1's nat. size)

settles on trees, and I have only once seen a pair sitting on a building. It is, however, a good flier, and at times may be seen soaring like other Storks and Vultures at a great height from the ground.

The diet is very mixed, consisting of reptiles, frogs, fish and a variety of other living creatures that it finds in the vicinity of water. It appears to be a silent bird,

be breeding season is rather extended; the majority of nests will be found from June to Augusto and the found from June 10 Augusto and the found from June 10 Augusto and single year. The nest is a large rudely-constructed only of twigs and single branches, sometimes thinly lined with down and feathers, and at other times densely lined with these materials and straw and dry crass.

The nests are built in large trees, sometimes at some distance from water or in a village site, and they are placed at a height of 20 or 30 feet from the ground. The clutch consists of three or four eggs. They are rather variable in shape, and have a fine but chalky texture without gloss. In colour they are a faintly bluish-white, unmarked, but in the nest they gradually become stained to a dirty earthy-brown colour.

In size they average about 2.5 by 1.83 inches.

THE BLACK-NECKED STORK

XENORHYNCHUS ASIATICUS (Latham)

Description.—Length ga inches. Sexes alike. Head and neck black, richly gloased with bluist-green except for a patch on the nape coppery-brown, passing into purple on the edges; a broad patch down each side of the upper surface including the innermost flightfeathers and the largest wing-coverts, a line of coverts under the wing and the whole tail black, richly glossed with metallic green; rest of plumage white.

Iris bluish-brown; bill black, gular skin and eyelids dusky purple; legs coral-red.

Bill very long and massive, slightly uptilted; neck long; legs very long. Four toes, moderate in length, the front three united by a small web at the base. Field Identification.—A gigantic Stork with a very massive beak

and long legs which is found solitary or in pairs. In flight appears pixel black and white, the wings from benuals showing white with a black line along the arm and another along the body edge. The combination of black best, black feathered head on feeck and red legs effectually establishes the identity. The Black Stork (Cleonic anjury), a winter visitor to Northern India, is the only other species with a black feathered head and neck but the bill and the legs are red and in flight the whole wing appears black from below.

Distribution.—Widely distributed from Ceylon and India to Australia. The typical race is found in Ceylon, India, Burma, Siam, Cochin-China and the Malay States. In India it is very generally distributed in suitable areas as a resident species.

The famous Adjutant Bird (Leptoptiles dubius) of old Calcutta stories, a winter visior to Bengal and Assam, is the largest and most impressive of the Indian Storks. The Smaller Adjutant (Leptoptilos) jaconicus) is resident in parts of Southers and Eastern India, so these species are distinguished from all other Indian Storks by the maded head and neck, the larger bird being essentially a sexemper.

Habits, etc.—This fine Stork is not a gregarious species and it is usually to be met with solitary or in pairs resting on the top of trees

or feeding along the edges of rivers, tanks and marshes. It is also partial to salt-water lagoons with shallow foreshores in which it wades out far from the edge of the water, its length of leg giving it great powers of exploration and enabling it to keep so far out in the open that it is with difficulty approached. When disturbed it flies off with slow and heavy flaps of the wings and after acquiring sufficient impetus sails quietly along on outstretched wings. It feeds on fish, reptiles frogs, crabs, molluses and similar forms of life.

The Black-necked Stork has a singular habit of dancing. A pair will gravely stalk up to each other and when about a yard apart will stand face to face, extend their long wings and while they flutter these very rapidly, so that the points of the wings of the one flap against the points of the other's wings, advance their heads till they nearly meet; both simultaneously clatter their bills like a couple of watchman's rattles. This display lasts for nearly a minute, after which one walks a little apart, to be followed after a moment by the other, when they repeat the performance, and so on perhaps for a

The breeding season extends from October to January. The nest is built at the top of a tree, usually a very large one, and it is always solitary, never in the colonies of other Storks, Ibises and Herons, It is always a large structure and is sometimes enormous, measuring as much as 6 feet by 3 feet and deep in proportion. Externally it is composed of sticks and small branches. Internally it is carefully lined with rushes, grass, water-weeds and similar material, whilst very occasionally there is a regular parapet of mud. In some cases the

The clutch usually consists of four eggs, three to five being sometimes laid. The egg is normally a broad oval, compressed at one end so as to be slightly pyriform. The texture is rather coarse with the surface smooth though dull and mostly glossless. When fresh the egg is nearly pure white, with a very faint tinge of bluish-grey but it soon becomes dirty and stained.

In size the egg measures about 2.90 by 2.10 inches,

nest is used year after year.

THE PAINTED STORK

Description.-Length 40 inches. Sexes alike. The whole head, neck and body white with a broad black band glossed with green across the breast; wings black glossed with green, the smaller coverts above and below with broad white edges and the greater coverts rosy. pink: feathers at the junction of the wings and body pink with white edges : tail black. Iris pale yellow: bill and bare facial skin orange-yellow, plumbeous

at the base of the bill; legs brown.

Bill long, broad at the base and curved at the tip with both mandibles partly cylindrical: front of head naked: legs long with long toes and the tibia half-naked.

Field Identification .- A large long-legged Stork with a bill curving down towards the tip. Plumage white with a black band across the breast, the wing- and tail-quills black, but most easily identified by the conspicuous pink patch on the side of the wing. Common in parties

as well as in Ceylon, Burma, Southern China and Cochin-China. A

resident with local seasonal movements.

Habits, etc.—The Painted Stork (or, as it is sometimes called, the ing rivers, tanks, ponds and marshes usually in parties but occasionally solitary. It stalks about the shallows with its bill in the water partially open and ready to seize any fish, eel, frog or crab that comes its way. If the fish be a spiny one it crushes the spines between its strong mandibles and then swallows it head foremost. During the heat of the day it stands motionless in water digesting the morning meal. Like other Storks these birds have a habit of clattering the mandibles and shaking the head from side to side. Except for the ability to make a harsh croaking noise they are said to be voiceless. If brought up from the nest this species makes an excellent pet, becoming very docile and tame, answering to its name like a dog.

somewhat irregular and extended, lasting from September till April.

The birds nest in colonies, seventy to a hundred nests being found together on trees, so closely packed that half a dozen trees may suffice for the whole colony. Some colonies are in remote swamps on the large trees that rise among the water-logged grass and scrub. Others are to be found in the middle of villages or over village tanks where the birds pay no attention to the busy activities below them. Tamarind, peepul and banyan trees are usually chosen, and the nests are built on the tops of the upper boughs often 60 or 70 feet from the ground so that the birds can arrive or leave without brushing their wings. The Painted Storks are of course usually only part of still larger colonies of a number of other species of water-birds, the Storks' nests being surrounded by those of Spoonbills, Cormorants, Darters, Herons and Egrets, the whole forming a picture of bird-life hard to surpass.

The actual nests are loose ragged platforms composed of thin

POPULAR HANDBOOK OF INDIAN BIRDS sticks and twigs with a hollow for the eggs. They strike one as rather

small for the size of the bird. The usual clutch consists of two to four eggs. These vary a good deal in size and shape but are typically elongated ovals, a good deal compressed towards one end. The shell is rather fine and compact but it is entirely devoid of gloss. In colour it is dull white, occasionally with a few dingy brown spots and streaks but it soon becomes stained and soiled as incubation progresses.

In size the egg averages about 2.77 by 1.88 inches.

THE OPEN-BILL

Anastomus oscitans (Boddaert)

Description.-Length 32 inches. Sexes alike. Entire plumage white except for the wing-quills, their neighbouring line of coverts and the tail which are black, glossed with dark green and purple.

In many birds the white is sullied with smoky grey, darkest on the nape and upper back. There has been some dispute about the identity of this grey phase, but it may represent the breeding plumage.

Iris pale brown; bill dull greenish, tinged with reddish beneath;

bare facial skin blackish; legs pale fleshy.

Bill long and stout with both mandibles slightly curved so as to meet along the base and at the tip, leaving a wide gap just beyond the centre, the upper edge of this gap provided with lamellæ. Neck and legs long and the toes proportionately longer than in most Storks.

Field Identification .- A small white Stork with the tail and the flight-feathers black. Identified at once by the curious beak of which the mandibles do not meet properly, leaving a gap between them which is visible even in flight at a distance. In coloration it can only be confused with the slightly larger white Stork (Ciconia ciconia) of Europe, which is at once identified by the bright red normal shaped bill and the red legs.

This occurs in winter throughout India and in Ceylon, but is rare south of the Deccan. It is a common species in the plains of the north-west.

Distribution.-India, Ceylon, Assam, Burma, Siam and Cochin-China. No sub-species. It is found throughout India in suitable areas and is resident, though it moves about locally in accordance with water conditions.

Habits, etc.-The Open-Bill is probably the commonest and most widely distributed Stork in India, being found in all well-watered districts in the vicinity of rivers, lakes and marshes. It also visits irrigated land. It is a social bird and often gathers into considerable flocks. There is little to remark about the ordinary habits of the Open-Bill beyond the fact that it indulges in the dances common to most members of the family, that it makes the usual clattering noise with the beak and that it is a strong flier, accustomed to soar for long periods high in the air. Interest must be chiefly centred in the meaning of the curious beak and this is still a point which needs investigation. The chief food of the Open-Bill is undoubtedly fresh-water mollusca, though it occasionally eats fish, crabs and similar food. It has been suggested, therefore, that the gap in the beak is caused by wear, due to the constant crushing of the shells of mollusca. This explanation seems hardly adequate as it neither accounts for the unusual shape of the beak as a whole, the presence of the lamellæ on the upper mandible or the fact that similar wear does not take place



Fig. 100-Open-Bill (2 nat. size)

in other Storks which also to some extent feed on mollusca. The

The breeding season in Northern India is in July and August. In Ceylon it is in January, February and March, and in Southern Madras eggs are said to have been taken in December.

The species is colonial in its breeding habits, and as many as 400 or 500 pairs have been found in a single colony. As a rule the colony only consists of the one species. At other times it includes other Herons and Ibises. The nest is a circular platform of sticks with a slight depression in the centre, scantily lined with grass and leaves. It is built on large trees and a single tree may contain as many as 60 nests. The condition of the branches and the ground under such trees may easily be imagined, and the fact that the lining istic of such a colony.

The egg is usually a typical oval in shape, with a texture close and satiny. When fresh the colour is a kind of creamy-white without markings, but this soon becomes soiled, and the egg then appears the dirty vellowish-brown common to incubated eggs of many water-

The egg measures about 2.25 by 1.6 inches.

THE COMMON HERON

Ardea cinerea Linnæus

Description.-Length 40 inches. Sexes alike. Top of the head and crest and a band behind the eye purplish-black, the rest of the head white; neck white, tinged with greyish-lilac and streaked on the lower fore-neck with black; upper plumage ashy-grey, paler on the outer wing-coverts and with elongated whitish tips to the feathers of the shoulders; flight-feathers bluish-black; long breast plumes white; a black patch of long plumes on each side of the breast continued as a black band down each side of the body; sides of body and wing-lining grey; remainder of lower plumage white.

Iris golden-yellow: a bare patch of greenish skin in front of the eve; bill dusky vellow, culmen brownish; legs greenish-brown and

greenish-yellow.

Bill long, compressed and pointed; neck and legs long; wings ample and rounded; tail short; toes long and slender with a slight web between the outer and middle toes : middle claw pectinated.

There are concealed patches of powder-down on each side of the rump and breast.

These patches, found in most members of the family, are believed to be connected with the cleaning of the plumage of the sticky slime inherent in a fish diet.

Field Identification .- A tall grey bird marked with black and white and with a sharp long bill, which broods almost motionless by the side of water. In flight recognisable at all distances by the slow flapping of the heavy rounded wings and by the long legs projecting

Distribution.-The Common Heron is one of the widely spread and familiar birds of the Old World, being found through the greater part of Europe, Asia and Africa. It is divided into races, and birds found in India, Cevlon and Burma are said to belong to the Eastern race, A. c. rectirostris, though the typical race of Europe may occur in North-western India as a migrant. In India it appears to be mainly a resident species; it is generally distributed in the plains and in the hills up to about 5000 feet.

The Purple Heron (Ardea purpurea) found in suitable places throughout India is far more retiring and is usually flushed out of reed-beds. The rufous-buff neck, darker upper parts and chestnut under parts distinguish it from the Common Heron.

Habits, etc.-Although gregarious in the nesting season, and occasionally met in small parties or flocks at other times, the Heron is essentially a solitary bird; and in that character it is familiar to the mass of mankind, who in the gaunt, motionless, silent figure see a suitable foil to the majesty of the scenery in which it is usually found. Mountain lake and purling mountain stream, the sand-banks and broad waters of the mighty rivers of the plains, tropical jheel, and dirty village pond, all alike afford the spectacle of a Heron at its fishing. Sometimes it wades in shallow water with slow deliberate paces, the neck outstretched: more often it stands motionless at the edge of the water, the head sunk between the shoulders, and nothing but the cold keen eye to show that it is not asleep; but woe betide the luckless frog or fish that trades on this immobility and ventures Heron has fed. Small mammals and birds, mollusca, insects and crustacea are also eaten, but the diet mainly consists of fish, whose

when travelling the bird mounts high in the air and is recognisable a long way off. The head is drawn back within the shoulders and the long legs trail behind, while the large rounded wings beat with a slow methodical laboured rhythm. The call is a loud harsh frank, usually uttered in flight. The bird is partly nocturnal in its

In India the breeding season extends from March to August.

The nest is a large, flat, loosely-built structure of twigs and sticks, at a considerable height from the ground. Many pairs breed in company with different species of Egret. Occasionally they breed

The clutch in India normally consists of three eggs.

The egg is a moderately broad oval with a firm and rather coarse shell studded with minute pores, slightly chalky in texture and entirely

In size the eggs average about 2.27 by 1.66 inches.

THE LITTLE EGRET

EGRETTA GARZETTA (Linnæus)

Description.—Length 25 inches. Sexes allike. Entire plunage pure white. In the breast are lengthened and lanceolate in shape and there is a creat of two long attenuated feathers. The feathers of the back are also greatly elongated and turn upwards at their ends, the rami being widely spaced, long and drooping; these are the "Egret" or "Osprey" plumes of the millinery trade.

Iris yellow; bill black, the base of the lower mandible and a bare patch round the eye greenish-yellow; legs black, toes and extreme base of tarsus yellow.

A miniature Heron in structure.

Field Identification.-A long-legged, long-necked, white bird, found generally in parties, about the neighbourhood of water. The pointed beak and small size at once separate it from the Spoonbill. Difficulty is sometimes found in identifying it in the field from the Large Egret (Egretta alba), the Smaller Egret (Egretta intermedia), the Reef Heron (Demiegretta asha) and the Cattle Egret, all white Herons, locally common. The points to remark for the Little Egret are its small size, the black beak at all seasons, and the two long crest plumes in breeding plumage. The Cattle Egret has the beak always vellow. The Reef Heron, a dimorphic bird, white or grey in colour, found along the west coast of India, has the beak and legs variable in colour but never black. The Large Egret and the Smaller Egret have the beak black whilst breeding, but vellow at other seasons. The former is generally solitary, and may be at once known by its size equal to that of the Common (Grey) Heron. In breeding plumage it has neither crest nor breast plumes. The Smaller Egret has no crest plumes in breeding plumage, but both breast and dorsal plumes, the latter being very long and exaggerated.

Distribution.—The typical race is widely distributed in Southern Europe, Africa and Southern Asia to Africa and Japan. It is common throughout the plains of India, Ceylon and Burma. There is a closely allied race in the Malayan Archipelago and Australia.

Habits, etc.—The Little Egret is found very generally throughout. India wherever water is plentiful. Paddy-fields, mankbes and tank, rivers and creeks, and even irrigated fields and the neighbourhood of canals are all frequented by the birds. They live in parties and feed on the ground, wading about in the shallow margins of the water or stalking over the neighbouring grassland. Their food consists very largely of fish and frogs, but lizards, worms, grasshoppers, locaus. aquatic insects, freshwater mollusca and crustacea are all eaten. They rest either on the ground or on trees. The flight is rather slow and laboured with regular beats of the broad rounded wings, and in flight the head is retracted to the shoulders, and the legs outstretched beyond the tail.

The outstanding characteristic of the bird is, of course, the wonderful nuptial plumes from which the name is derived. These plumes have long been used amongst Eastern nations as an ornament to the



Fig. 101-Little Egret (% nat. size)

head-dress, and the gift of a jewelled sigrette was one of the most distinguished compliments that an Oriental ruler could pay. Such a compliment was paid to Nelson by the Sultan after the Battle of the Nile. These sigrettes have an ungraceful copy in the stiff plant mounted on the front of the Hussar busby and other military head-income.

In the last century the Little Egret with others of the family suffered greatly from the depredations of the plume-trade, since the aigrettes were in great demand for ladies' fisshions. As the birds nest in large colonies and the aigrettes are only donned in the breeding season, much harm was done and great cruelty inflicted, whole colonies being wiped out by the adults being shot and the young left to starve in the nests. It was discovered in Sind, however, that the birds would breed in confinement and that the plumes could easily and more profitably be harvested from the captive birds. Egret-farming has since rapidly spread, and under present conditions it is permissible to hope that the Egrets may not be exterminated in India as they almost were in Ervet.

The breeding season in Northern India is in July and August, and in December in the south. This Egret invariably breeds in colonies in trees, generally in company with other species of Helsons and Ibises, the various nests all jumbled up indiscriminately. The colonies are often placed in the centre of towns and villages. The nest is a rough shallow cup of sticks, occasionally lined with a little sedge or coarse grass.

The clutch consists of four or five eggs. They are moderately broad ovals, with a firm and rather coarse glossless shell fitted with minute pores. The colour is a delicate sea-green or bluish-green which soon fades.

The egg measures about 1.73 by 1.32 inches.

THE CATTLE EGRET

Bubulcus ibis (Linnæus)

Description.—Length 20 inches. Sexes alike. Entire plumage pure white.

When breeding hair-like plumes appear on head and neck, except on the forehead and the chin, and long "egret" plumes are developed on the back; all these are orange-buff.

Iris pale golden-yellow; a patch of bare skin from the eye to the beak greenish-yellow; bill yellow; legs black, in places mottled with yellowish.

A miniature Heron in structure.

Field Identification.—A slender white bird with long neck and legs usually found in attendance on herds of cattle. In the breeding season the buff egret plumes distinguish it from all other species, though it still looks white at a distance; but when these are shed it is difficult to distinguish from the other species of Egret, which are also pure white in colour. The yellow bill separates it from the Little Egret, the black legs from the Reef Heron (Deniegreta ada), and size alone from the Large Egret (E. alba) and the Smaller Egret (E. intermedia).

Distribution.—The Cattle Egret is a widely spread species inhabiting the warmer parts of Europe and Asia and the whole of Africa. It is divided into two races: the typical form is found in Europe and Africa, while B. I. coronandus, the race which is found in India, Ceylon and Burma, extends also to Southern Japan. In India it is generally spread throughout the plains except in the drier portions of the northwest. It is not found in the hills. A resident species.

Habits, etc.-The Cattle Egret or Buff-backed Heron is common enough in the well-watered parts of India where jheels, rivers, and inundations occur and cause the formation of grazing grounds for cattle, with lush green grass. This species, however, is not nearly so much a bird of the water as most of the Herons and Egrets, but it has specialised in the direction of attendance on cattle. Where herds of cattle commonly graze, there will this Egret be found, in parties large or small, attending the cattle closely, sometimes perching on their backs but more generally stalking round their legs. For though it feeds sometimes on small fish, tadpoles, and aquatic insects, its chief food consists of grasshoppers and flies, and these it obtains in plenty while attending the cattle, pecking them off the grass, and off the animals themselves. It also performs a definite service by ridding their skins of leeches, ticks and other parasites. It is a tame, confiding bird and is not molested by the cattle-herds, nor are its nuptial plumes sought after by plume-hunters, who confine their attention to the

The breeding scason is dependent on the monsoons, in Northern India from June to August, and in the south in November and December. It breeds in colonies, usually in company with other similar species.

The nest is a rough unlined structure of sticks placed in trees, often at a considerable height from the ground.

The clutch consists of four or five eggs. The egg is a rather broad oval, somewhat pointed towards one end; the texture is compact and fine without gloss. The egg of this species is nearly always distinguishable from those of the other small Herons by its colour, white with a faint blue or green tinge, as opposed to the usual delicate seasons.

The average measurement is 1.71 by 1.32 inches.

THE PADDY-BIRD

Ardeola grayi (Sykes)

(Plate xix, Fig. 1, opposite page 456)

Description.—Length 18 inches. Sexes alike. Winter plumage:

Head and neck dark brown streaked with pale yellowish-buff, darker on the crown and paler on the fore-neck; chin and throat white; the back and the shoulders ashy-brown with pale yellowish stripes on the latter; remainder of the plumage white, the upper breast streaked

with brown.

In breeding plumage the head and neck are light yellowish-brown, the crown brown, and the chin and throat white; a white crest of long pointed feathers; back deep maroon, the feathers long and hairlike with dark slaty ends, and a line of brownish-buff feathers as a border: upper breast ashy-brown with narrow whitish streaks, the feathers long and rather disintegrated.

Iris bright yellow; eyelids greenish-yellow; bill bluish at the base, yellowish about the middle, and black at the tip; legs dull

The neck and legs are shorter than in the true Egrets.

Field Identification .- A very small Heron, the commonest of its family in India, found by every piece of water; it escapes notice by its dingy coloration until it springs to life with a flash of white wings

Distribution.-The Paddy-bird or Pond-Heron is found in the west as far as the Persian Gulf, and from there extends throughout India, Ceylon and Burma to the Malay Peninsula. Within our area it is found practically everywhere in the plains, extending also in the hills up to 4000 feet. In the main a resident species it is locally

Habits, etc.-This must be one of the commonest and most familiar birds in India, being found wherever there is water. It feeds chiefly on frogs, crabs, small fishes, insects, and the other miscellaneous life. that has its being in or near water; in pursuit of this mixed dietary the Paddy-bird spends its life on the edge of water, fresh or salt, in mangrove swamp, iheel and river, on lake and village pond, in roadside ditch or borrow-pit. No puddle is too small, no water too dirty for its attention. It sits there motionless on the mud, or ankle-deep in water, hunched up with the head and long neck drawn back within the shoulders, or stalks slowly along moving each foot with slow meticulous caution. But the quick stab of the pointed beak with all the length of the neck behind it is too quick for fish or grasshopper. and the little Heron never goes hungry in its hunting, for all its sluggard aspect. Its dull colours assimilate with the mud and herbage, and the bird is tame and confiding, with the result that it is seldom noticed until it rises close to the passer-by, springing into life with a sudden flash of the white wings, and a harsh croak which expresses its annoyance at the disturbance. To this invisibility is due the name of "blind heron" that it bears in several dialects. Though seemingly a misanthrope by nature, the Paddy-bird is found in great numbers in suitable places, and the birds collect to roost or to rest in shady branches in the daytime. They breed also more or less in company though hardly in defined colonies, and numbers of their nests will be found wherever Night Herons and Egrets collect to breed

The breeding season lasts from May to September, and locally apparently to December, but most nests will be found in July and August.

The nest is a rough shallow cup of sticks, often small and very loosely put together; it is placed in the smaller forks of trees or large bushes, at heights varying from 10 to 30 feet from the ground, and the little Herons scramble and clamber along the branches with great facility, an accomplishment shared by the chicks when they are twothirds grown.

The clutch varies from four to six eggs. The eggs are slightly elongated ovals, often perceptibly pointed at both ends; the texture is compact and fine, somewhat chalky and without any gloss. In colour they are a deep sea-green or greenish-blue, which is very

In size they average about 1.48 by 1.17 inches.

THE NIGHT HERON

NYCTICORAX NYCTICORAX (Linnæus)

Description.-Length 23 inches. Sexes alike. Top of the head with a drooping crest and the back black glossed with metallic green; a few long narrow white feathers of great length spring from the crest; forehead, a streak over the eye, cheeks and the lower plumage white; sides and back of the neck, flanks, wings, rump and tail light ashy with a faint pinkish tinge.

Iris blood-red; bare skin from the eyes to the beak yellowishgreen, dull livid in the breeding season; bill black, yellowish at the

base except when breeding; feet yellowish-green. The bill is stouter and deeper than in the other Herons, and the

a neck is short and thick. Field Identification.—A small heavy Heron largely nocturnal in its habits, and sleeping by day in thick trees. The grey colour with white on the face and under surface, and the greenish-black crown

Distribution.—The typical race is found through South and Central

Europe as well as nearly the whole of Africa and the greater part of Asia; other races are found in North America and the West Indies. In India it is very general, being found throughout the plains and in the North-western Himalayas up to 5000 or 6000 feet. In the main a resident species, it is also locally migratory.

Another heavy looking species of similar size is the Bittern (Botaurus stellaris) which may be flushed from reed-beds in winter in Northern

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India. The colour is buffy-brown, streaked, barred and mottled with dark brown and black

Habits, etc.-The Night Heron is very common and abundant, though like many species that are colonial in their habits and dependent on water, its distribution is rather irregular. It is definitely a nocturnal species and is very shy and secretive.

The members of a colony spend their day sleeping and brooding in the thick foliage of a clump of trees, waiting till the fall of dusk, Then the whole colony moves off to the feeding grounds, in a continuous stream, each bird flying separately and each at intervals uttering the harsh raucous wock, which is almost a quack rather than a croak. The flight is dignified and moderately fast, the bird looking very short and heavy with its head tucked into its shoulders and the regularly flapping broad round wings. The roosting place once left behind, the birds spread far afield for the night's fishing in every little pond and jheel and stretch of water. The food is varied, like that of all the Herons, and consists of small fish, amphibia, crustacea, and

The breeding season is in July and August in the plains, but early in April and May in Kashmir. The nest is a rough and slight structure of sticks, unlined, and placed in a tree, usually at a good height from the ground. A few nests are solitary, but usually the birds build in colonies, and generally these colonies are in association with those of other species of Herons and Egrets.

The egg is a moderately broad oval, as a rule rather obtuse at both ends. The texture is fine and hard, without gloss. The colour

The eggs measure about 1.02 by 1.35 inches,

THE CHESTNUT BITTERN

IXOBRYCHUS CINNAMOMEUS (Gmelin)

Description.-Length 15 inches. Male: whole upper plumage including the wings and tail rich chestnut, somewhat variable in tint; the whole lower plumage rich tawny ochraceous, the concealed bases of the feathers white, and a white stripe on each side of the throat; traces of a brown stripe down the middle of the fore-neck; a patch of black, buff-edged feathers on each side of the breast, largely

Female: Upper parts dull chestnut-brown, washed with sooty on the crown; wings paler, the coverts mottled with buff and dark brown, the quills dark brown towards their bases; lower parts yellowish



tawny streaked with dark brown, a darker broken band down the

centre of the throat and neck. Iris yellow to pale red; bill yellow, blackish along the top; facial

skin reddish-purple in males, yellow in females; legs yellowish-green, soles yellow. Bill stout, straight and pointed, Head narrow continuing the

long neck; wings rounded; tail short. The feathers of the upper

breast are elongated.

Field Identification.-A miniature Heron which lives by day in dense patches of reeds from which it is flushed with great difficulty. The rich tawny-chestnut colour, which includes the wings, separates it from all other forms. In flight the head is drawn back to the body, the rounded wings flap slowly and the legs are held out straight behind.

Distribution.-No sub-species. Widely distributed in India, Ceylon, Burma, China and the Malay States to the Philippines and Celebes. Very generally distributed throughout India, but dependent on suitable reed-beds for its distribution. A local migrant, but its

movements are not properly known.

The Little Bittern (Ixobrychus minutus) and the Yellow Bittern (Ixobrychus sinensis) are two other species of similar size and habits, but immediately separated by having the wing-quills black. The Little Bittern breeds very commonly on the Kashmir Lakes and less commonly in Sind. The male is easily recognised in flight by the black crown and black back. The female is not ordinarily distinguishable in the field from both sexes of the Yellow Bittern, though these latter may be known in the hand by the vinaceous red sides to the neck, this part being yellowish-brown in the female Little Bittern. The Yellow Bittern is found more or less throughout India in large reed-beds. Another miniature Heron found by suitable water throughout India, but not in reed-beds, is the Little Green Heron (Butorides striatus) which may be recognised by the amount of green in its plumage.

Habits, etc.—The Chestnut Bittern has been chosen to illustrate the habits of the three species mentioned above which individually are seldom found in any numbers and yet collectively are very characteristic birds of the jheels of India. They are largely nocturnal in their habits. By day they hide in dense cover in reed-beds, swamps or rice-fields and can only be driven out by careful beating. By night they fly out to fish in more open places where they catch a miscellaneous diet of fish, frogs, worms and various water-insects and larvæ. Like the larger Herons they have the gift of patience and sit solitary waiting for their prey; but they can also be very active, climbing about the reeds and stems on foot. All three species probably have the habit, known in the Little Bittern when danger threatens, of standing with the head and neck extended skywards, the feathers closely pressed against the skin, the whole attitude and coloration being protective amongst the varied lights and shades of a reed-bed. To this the streaking on the lower plumage greatly contributes. The ordinary call is a slight croak.

The breeding season is in the rains from June to September.

The nest is a slight shallow pad composed of short lengths of sedge lined with rather finer grass. It is built, of course, in a dense reed-bed, and may be placed near the surface of the water on the roots of the reeds or at any height in the reed-bed, either on a bush or more usually on a number of reeds bent down for the purpose.

The clutch consists of four or five eggs.

The egg is a broad regular oval, very fine and compact in texture but without gloss. The colour is dull white, sometimes with a very faint bluish tinge, but the egg very quickly becomes dirty and stained. Both sexes incubate, and incubation in this genus usually starts with the laying of the first egg so that the young found in a nest are of

The egg measures about 1.30 by 1.05 inches.

THE NUKTA

SARKIDIORNIS MELANOTOS (Pennant)

Description. Length, male 30 inches; female 26 inches. Male: Head and neck white, spotted with glossy black, the black prevailing along the top of the head and back of the neck; a collar round the lower neck, and the lower plumage pure white, washed with pale ashy-grey on the sides of the breast and flanks; the whole upperplumage, wings and tail, except the brownish-grey lower back, black glossed with green, purple and blue, a black bar extending on to each side of the upper breast and another on to the lower flanks.

The female is similar but smaller, with more black on the head

and neck and less gloss elsewhere.

Iris brown; bill black; legs greenish-plumbeous.

The male has a black fleshy knob (the comb) on the top of the beak which becomes greatly developed in the breeding season. Field Identification.-A large Goose-like duck, glossy black above

white below, with a spotted head and neck. The size and coloration is distinctive apart from the curious comb of the drake.

Distribution.-Found in India, Ceylon and Burma in suitable localities; also in Africa south of the Sahara and in Madagascar.

The typical race is found virtually throughout India except in the North-west Frontier Province and Baluchistan, the Northern and Western Punjab, and the north-western portions of Sind; it is confined to the plains and appears to be a local migrant.

The Flamingo (Phanicopterus ruber) is usually placed near the geese and ducks. The rosy-pink and white plumage with black flightquills, the long legs and neck and the unique bill bent downwards and adapted for feeding in an inverted position render identification easy. It is found on lagoons throughout India, but is most numerous as a non-breeding visitor to North-west India. It breeds in Cutch.

Habits, etc.-The Nukta or Comb-duck is common in well-watered and well-wooded parts of India, and is generally found in large marshy tanks and jheels with reedy margins and plenty of trees in the vicinity. In such places it is found in pairs and family parties, and not being semi-nocturnal in its habits like most of the ducks and geese, is to



as it nests, in trees,

the wing together the male usually leads. The voice is more like

rice, but the roots, seeds and shoots of various water-plants are also eaten, as well as a certain amount of worms and spawn and larvæ

The nest is normally built in trees and is a rough structure of structure of season discovered by the season of centhers; it is placed either in a hole in a trunk, or in the depression so often found where several large branches join the trunk of a tree; mango trees are usually favoured.

The normal clutch consists of seven to twelve eggs, but the number frequently exceeds this, and forty eggs have been recorded in a single nest, though these may have been the product of two females.

The eggs are very regular ovals, slightly pointed at one end. The texture is wonderfully close and compact, and when fresh the eggs both in colour and appearance seem made of polished ivory; with the progress of incubation some of the gloss departs and the shells become stained and dirty.

In size the eggs average about 2.40 by 1.70 inches.

THE COTTON-TEAL

NETTAPUS COROMANDELIANUS (Gmelin) (Plate xx, Fig. 3, opposite page 480)

Description.—Length 13 inches. Male in summer plumage: Top of the head dark brown; is black collar glossed behind with green round the lower neck; remainder of the head and neck white; upper plumage dark brown glossed with metallic-green or purple; primaries dark brown on their basal halves, then white with the tips black; secondaries dark brown glossed with metallic-green or purple and tipped with white; upper tail-overst dark brown motted and finely barred with white; lower plumage white, the sides finely exemicalized with brown; wing-lining and a patch under the tail

In winter the male loses its collar and resembles the female except for the white wing-bar and some of the green gloss on the upper plumage and wings.

Female: Top of the head and a line through the eye brown; remainder of head and neck and lower parts sullied white, the head and neck being speckled with brown marks that become defined wavy lines on the breast; upper parts, wings and tail brown, the inner wing-quills tipped with white and the upper tail-coverts mixed

Iris red in males, brown in females; bill brown above yellowish below, in breeding males black; legs greenish-yellow, in breeding males black and dusky yellow.

The beak is short and Goose-like, that is, very high at the base and narrowing gradually in front.

Field Identification.—The smallest of the Indian Ducks, being easily recognised by its size and the predominance of white in the plumage. The drake in full plumage is dark glossy brown above with a white wing-bar and a black collar; the female is brown above and lacks the wing-bar and collar.

and lacts the wing-on and colour.

Distribution.—The Cotton-Teal is found in India, Ceylon and Burma, and it extends eastwards through the Malay countries to China and southwards to the Philippines and Celebes. In India it is generally distributed in the plains except along the western boyder from Malabar to the Northern Punish, where it is scarce or.

Habit, etc.—This curious little Duck finds its usual labitat in those overgroon ponds and broad dykes and channels where much of the water is choked with a growth of grass and weeds. It may also be found on open sheets of water, but even then it keeps to the weedlest stretches and the near neighbourhood of cover. It lives in parties and small flocks, and by nature, when undisturbed, is familiar and unway. It spends all its time in the water and dives well, but being a poor walker it seldom ventures out on to land though it perches at times on trees. The light is fast, and as a rule it files low over the water, twisting and turning skilfully to avoid stumps and clumps of vegetation. On the wing it is very noisy uttering a mel clumps of vegetation.

The breeding season is from June to August.

This Duck nests in the holes and hollows of trees in the near vicinity of water; the site may be at any height from the ground, from near water-level to about 30 feet up; though the majority of nests are placed at height of about 10 or 15 feet. The hole is thickly lined with view, grass and feathers, all the work being done apparently by the female alone. The normal clutch varies from eight to fourteen eggs, but as many

as twenty-two have been recorded.

The egg is a very regular oval, almost indeed spherical in shape.

The shell is very fine and smooth in texture, ivory-white in colour with a high class.

In size it averages about 1.7 by 1.29 inches

THE BAR-HEADED GOOSE

Anser indicus (Latham)

Description.—Length 30 inches. Sexes alike. Head white, with two short black bars on the nape; a white band down each side of the neck; hind-neck dark brown, passing into the pale ashy-grey of the upper plumage; on the upper back and shoulders the feathers

have paler tips and the greater coverts are broadly edged with white flight-feathers black, the outer ones with much of the base grey tail pale grey with white edges; for-ence or emish-ashy, see gradually into whity-brown on the breast; sides of the breast browner, darkest on the flanks, barred with the pale true of the feathers; remainder of lower plumage white.

Iris brown; bill yellow, with the nail blackish; legs orange,

A heavily-built bird, with a long neck and short rounded tail. Bill short and high at the base, almost conical in shape; legs short and stout with webbed toes.



Fig. 103-Bar-headed Goose († nat. size)

Field Identification.—A typical Goose, grey-brown and white in colour and easily identified from all other species by the two dark bars on the back of the head.

Distribution.—In summer the Bar-headed Goose breeds in Central Asia and Western China southwards as far as Ladakh and Tibet. In winter it moves south to India and Burma, arriving in October and leaving in March.

In Northern India it is abundant in winter from the Indus Valley eastwards across to Assam, most numerous on the west and less so to the east. About the Central Provinces it grows less common and south of that it is scarce, though stragglers are found right down into Southern India.

The Greylag Goose (Anser anser) is also a common winter visitor to Northern India, where it is abundant in Kashmir, the Punjab

Sind and the United Provinces. The white nail to the bill and the grey rump assist its identification. Considerable doubt statches to the identity statches to the identity respects from India, but the White-fronted Goose (Auser abilityons) with a white nail and a dark greyish-brown rump occurs in small numbers in the North-west. In this species a white hand about the base of the beak is most distinct.

Habits, etc.—This typically Indian Goose is found on the larger lakes and Jheels of Northern India but it is chiefly a riverain species, spending the hours of rest and daylight on the sand-banks of the great rivers of the north and feeding by night in the cultivation that extended about their banks. These, like other species of geese, graze on green vegetable food, and they do a lot of damage to the young shoots of wheat, barley and rice, and also in the grain-fields, which are visited night after night. There is a well-marked morning and evening flight to and from the feeding grounds, and where the birds are not much disturbed they start feeding early in the evenings and also continue after dawn.

At all times they are very wary and difficult to approach, and the docks are usually credited with posting definite sentinels.

This Goose is found normally in large flocks of 20 to roo birds, but occasionally small parties and pairs separate off by themselves. They fly high in the air with a very measured beat of the wings and keep in regular formations of lines and wedges. The cell is a deep sonorous note, uttered by several birds in unison and usually described as "measing."

In Ladakh and Tibet the eggs are laid in May and June. The nests are placed on islands of the salt lakes at 13,000 and 14,000 feet elevation, and are mere hollows in the soil lined with the bird's own down. Where suitable islands do not exist, nests are placed on the ledges of clifts.

The full clutch usually consists of five or six eggs. The egg is a long-pointed oval, strong in texture with a rather coarse grain and little gloss. The colour is a very pale creamy-white which soon becomes soiled.

The egg measures about 3.20 by 2.23 inches.

THE WHISTLING TEAL

DENDROCYGNA JAVANICA (Horsfield)

Description.—Length 17 inches. Sexes alike. Top of the head brown, darkening behind; remainder of head and neck light brown, darkening behind and paling to almost white on the chin and throat; back and shoulders dark brown, with broad pale rufous tips to the feathers; wings black with a chestnut patch on the shoulder; rump blackish; upper tail-coverts chestnut; tail dark brown; lower parts light ferruginous, becoming pale yellowish-brown on the upper breast and whitish below the tail; flanks light brown, with broad whitish shaft-streaks.

Iris brown, eyelids bright yellow; bill brownish-blue, the nail nearly black; legs brownish-blue.

The nail at the tip of the bill is prominent and sharply bent downwards; wings broad and rounded; legs long and stout.

Field Identification.-A heavy dark brown Duck with rounded wings which frequents overgrown swamps and settles in trees; the whistling call is distinctive. The chestnut upper tail-coverts distinguish it from the Larger Whistling Teal, in which they are whitish.

Distribution.-Found in India, Ceylon and Burma, extending also eastwards to the Malay Peninsula, Siam, Cochin-China, Southern China, Sumatra, Borneo and Java. In India it is found almost throughout the plains except in the North-west Frontier Province and in the Northern and Western Puniab. A local migrant, its movements depending on the water-supply.

The Larger Whistling Teal (Dendrocvena fulva) has a remarkable distribution in India, Burma and Ceylon, Africa and Central and South America. In our area it seems to be common only in Lower

Habits, etc.—This Duck avoids rivers and open weedless stretches of water and prefers tanks, backwaters, swamps, and lakes where there is an abundant growth of weeds and vegetation. Trees also are essential to its comfort, as it not only breeds in them but roosts and rests on the branches often in preference to water. It is usually found in flocks of fifty individuals and more, and in specially favoured localities it collects in vast numbers, surpassing those of all other Duck. Its dietary is very varied, but a vegetable diet seems to be preferred, and large quantities of mollusca are devoured. It is not suitable for the table.

The Whistling Teal is a strong quick swimmer and it dives well; the flight is not very fast, though the wings are beaten very rapidly and with great effort. As the name denotes, the call is a regular whistle, not very clear, rather sibilant, and by no means harsh or shrill. It is constantly uttered on the wing, especially when the bird first takes to flight. There is also a low chuckling call, almost a

The breeding season is from late June until September. A certain number of nests are to be found on the ground or a few feet above it in masses of dense herbage. But the ordinary nest is in a tree. either in the deserted nests of crows and kites, or in hollows in the trunks and branches or between the boughs. The trees chosen are

usually in the vicinity of water; and the nest is seldom more than 20 feet from the ground, In the more open situations in trees the nest is a well-made struc-

ture of twigs and sticks lined with grass and a few feathers, but in deeper holes in trees the eggs are sometimes merely laid on the natural debris in the bottom of the hole. The average clutch consists of eight to ten eggs, though more or

less are often laid.

The egg is a spherical oval, very smooth and fine in texture, neither close-grained nor glossy, but rather chalky. The colour is ivory

It measures about 1.85 by 1.50 inches.

THE RUDDY SHELDRAKE

Casarca ferruginea (Pallas)

(Plate xxi, Fig. 3, opposite page 504)

Description.-Length 26 inches. Male: Head and neck buff, passing on the neck into the orange-brown of the body plumage; lower back and rump vermiculated with black; wings whitish-buff, bronze; tail and its upper coverts black; lower abdomen chestput; wing-lining white. There is sometimes a black ring round the

The female is sometimes duller in tint with the head paler, almost whitish; she lacks the black neck ring.

Very similar to a goose in structure, but the bill is flatter and

Field Identification,-Easily distinguished from all other ducks trasting in flight with the black quills and white wing-lining. Chiefly Distribution.-Breeds from South Russia and the Balkan Peninsula

eastwards through Middle Asia to China and Japan. In winter it moves southwards to North Africa, India, Ceylon and Burms, and stays until April, and is found throughout the length and breadth of the country in suitable places.

The Sheldrake (Tadorna tadorna) can be confused with no other the greenish black head and bright green speculum. It is an un-

Habits, etc.-The Ruddy Sheldrake or Brahminy Duck in India is essentially a bird of the larger rivers where the water is clean and left by the falling floods of the summer. In such localities it is found in pairs which spend the greater portion of their time on the sandy margins of the water, comparatively seldom entering it; but when they do so they swim well, with the head erect, the front half of the body low and the stern held high; on land they walk with ease. During the day they generally rest, sitting and standing about together. and at night they feed, often separating in the process. This has given rise to the native legend that in the pairs of Brahminies are enshrined the souls of erring lovers doomed as punishment to remain in sight and hearing but separated by the flowing stream; the ordinary call which is freely uttered is a loud rather melodious a-onk, which for the purposes of the legend is considered to form the names of Chakwa and Chakwi, and the lovers are credited with the eternal query in hope Chakwa aunga (Chakwa, shall I come?) answered sadly in the terms of the punishment Chakwi na ao (No, Chakwi). A warning note—a rolling k-r-r-rete—seems to be uttered only by

In the absence of rivers and sand-banks the Brahminy visits lakes and large tanks, but only those of the most open character. On the wing they rise high into the air and fly strongly with rather allow wingbets, and through this and their bright coloration which catches the sun they are easily recognished at a great distance. On migration numbers of pairs collect into loose flocks. Calm and confiding in its demenaous when danger does not threaten, it is one of the warries of the family, and to bring it to bag is always a triumph for the sportsman. In the main it is a vegetable feeder, and is therefore, as a rule, quite good eating; though there is a prejudice against it for the table as it is supposed to feed on carries.

The breeding season in Ladakh is in May and June. Here it nests in holes and crevices of the high cliffs that overhang the rivers and lakes, building a next of down and feathers. Six to ten eggs are laid. The egg is a moderately broad oval, slightly pointed at one end. The texture is fine and amount with a slight gloss and the colour is creamy-white.

The egg measures about 2.5 by 1.8 inches.

THE MALLARD

Anas Platyrhyncha Linnæus

Description.—Length 24 inches. Male: Head and upper neck glossy enercial-gene divided by a white ring from the deep chesturu breast; upper back finely vermiculated with brown and white washed on the shoulders with cheston; invidel back dark brown; runp and a patch above and below the tail black, partly glossed with purple or green; wings brown, the speculum* ne healthic violent-purple between two white bars edged interiorly with black; tail greyish-white, the four central feathers black ploased with blue-green and curled over backwards; lower plumage finely vermiculated grey and white; under surface of vines white.

Female: Brown above, the feathers edged with buff, and on the upper back and shoulders with concentric buff bands; sides of the head paler than the crown, with a darker streak through the eye; chin and throat brownish-buff; viniga as in the male; under pears buff with brown centres to the feathers, the upper breast browner; tall brown with whitish-buff edges.

Iris brown; bill greenish-yellow, blackish towards the tip, duller and yellower in the female; legs orange-red.

After breeding, the drake moults about June into a plunage resembling that of the female, and reasumes his own distinctive dress by another moult in September. This is known as the "celipse," and as the winq-quills are shed simultaneously and not in pairs in the usual manner, the bird is, for a time, virtually flightless. The female undergoes similar moults, and these are found in most of those species of duck in which the males are brilliantly coloured and do not assist in rearing the young. With the exception of the Spothill all the following sociecis have an "celinies" plunages.

Field Identification.—The most generally known of all wild duck. The mortled brown and buff duck and the greyish-white-looking drake, with his dark green head and chestnut breast separated by a white ring, are easily identified by the violet-purple speculum bordered the behalve and white bands.

Distribution.—The Mallard breeds throughout the Northern Huntiples and in winter is found southwards to Northern Africa, Milleipe, the Canaries and Northern India. It is found also in North America (though the Greenland and Iceland birds have been separated as sub-species), wintering south to Mexico, the West Indies and Pannama. Within our limits it breeds in very great numbers in Kysahmir

^{*} Speculum is the name applied to the rectangular patch of metallic colour

and great numbers winter there. It is abundant also in winter in the North-west Frontier Province, Baluchistan, the Punjab, Sind. and in lesser numbers in the United Provinces. A few wander to Rajputana, the Central Provinces, Bombay, Bengal and Assam, but to February.

Habits, etc.—The Mallard in India is found in pairs, small parties. and in flocks numbering up to forty or fifty birds, which may be found in all places where wild duck congregate, jheels, rivers, lakes and tanks, small reedy channels and irrigated cultivation. They swim and walk well, and when feeding do not dive, though they frequently depress the head and neck so far below water that their bodies are vertically inclined, the tail sticking straight into the air, while their feet paddle to maintain the balance. They rise quickly into the air straight off the surface of the water, and once on the wing the flight is very fast, the strong regular beat of the wings producing a whistling sound audible some distance away. They feed both by day and night, and have a regular flight to and from favoured feeding grounds at dusk and dawn; though this habit is not quite so marked in India as in the west, owing to the greater abundance of safe feeding places. The ordinary note of the male is a low and soft sound between a croak and a murmur, while the female has a louder and clearer jabber. But when flushed both sexes quack, that of the female being also louder.

The breeding season in Kashmir is in May and June. The nest is built of coarse flags and grasses, more or less lined with feathers and down from the bird's own breast; it is placed in clumps of rushes along the edges of jheels and water-courses.

The clutch consists of six to twelve eggs.

The egg is a moderately broad regular oval, of a fine and smooth texture with a slight gloss. Freshly laid it is of a dull pale greenish tint, but this soon fades and stains into a dingy brown colour,

In size the eggs average about 2:20 by 1:60 inches.

THE SPOTBILL

Description.-Length 24 inches. Sexes alike. Head and neck whitish with brown streaks except on the chin and throat, the marking being heaviest on the top of the head and in a band through the eye; upper back brown with pale edges to the feathers; wings brown, the speculum bright metallic-green, between two white bars edged interiorly with black, above the speculum a broad white streak; lower back, tail and a patch above and below black; breast and lower

abdomen fulvous-white spotted with brown: lower abdomen dark brown; under surface of wings white.

Iris brown; bill black with a vellow tip and a red spot on each side of the base : legs orange-red.

Field Identification .- A large duck in which both sexes wear a grey version of the plumage of the female Mallard. They are readily distinguished from her by the green (as opposed to purple) speculum, the bright red spots at the base of the beak, and the clumsier

Distribution.-The Spotbill is found almost throughout the Indian Empire, Siam, Cochin-China, China and Eastern Siberia. It is divided into three races, but we are only concerned with the typical form which occurs in India, Ceylon and Assam north of the Brahmaputra. In India it is very generally distributed south of the Himalayas from the Indus Valley eastwards, being most common in North-western and Central India. It is only locally migratory.

Habits, etc.-Apart from the fact that it is a resident species, the Spotbill differs from most of our Indian migratory ducks in its lack usually found only in pairs or small parties of ten to a dozen birds by trees. Fresh water is essential to them, even brackish water, like

trampling down and spoiling as much as it eats; water-molluses, frogs, worms, and insects are also eaten. From the sporting point of view and resting amongst cover often gets up practically at the feet of the on the wing it is a most deceptive bird to shoot, its size making the flight appear slower than it really is.

When wounded it dives well and conceals itself skilfully in the weeds or under water, holding itself submerged with only its bill

exposed for air. The ordinary note is a quack, very similar to that of the Mallard.

according to locality and the state of the rainfall, and at times the

The nest is a compact well-made structure of grasses, rushes and weeds, lined with the down of the parent bird. It is well concealed in herbage on the ground on small islands or bunds at the edge of streams and ponds, or even in grass some distance away from The clutch consists of eight to ten eggs, and fourteen have been recorded. The egg is a broad regular oval, rather pointed at the small end and the texture is smooth and fine with a slight gloss. The colour is a pale buffy-drab, which grows stained with incubation.

The eggs measure about 2.15 by 1.70 inches.

THE GADWALL

CHAULELASMUS STREPERUS (Linnæus) (Plate xx. Fig. 4, opposite page 480)

Busington.—Length ao inches. Male: Head and new ghr pelabusing peladed with brown, the crush the brown, the crush white speckled with brown, the crush the way. He can be with the brown is the crush white speckled with the wind the crush white is bars; bush chown, the feathers edged and vertice classified withing bars; both white; charged testhers edged and vertice with the full way and a patch above and below the right wings greigh-bown, the special back; but from a patch of chestnut and divided by a broad shaded black but from a patch of chestnut and divided by a broad shaded black but from a patch of chestnut with heavy brown revers; till greysle-brown; lower plumage whitish bars on the sides on the breast and narrow wavy brown bars on the sides and flanks.

Female: Head and neck streaked brown and white, browner about and whiter beneath; upper plumage dark brown, the feathers edged with rufous buff; rump blackish-brown; winga and tail as in the male except that the chestnut patch is very indistinct; breast pale rufous spotted with brown; abdomen white.

Iris brown; bill leaden-grey, in female dusky with orange sides;

legs dull orange-yellow, webs dusky.

Field Identification.—A large, rather dully-coloured duck which may be recognised at once by the white speculum divided by a black bar from a patch of chestnut on the wing-coverts. The drake has the tail set in a patch of velvet black, with the breast boldly marked in

brown and white crescents.

Distribution.—The Gadwall is found throughout the Northern Hemisphere, breeding in the temperate portions of Europe, Northwestern Asia and America. In winter it migrates combavalls to Abyasinia, India, Burma, Chini, Mexico, and Florida. In India distribution of the Company of the Company of the Company found in great numbers through Northern India down to Northern Bombay. South of that it grows less common until Mysore is its southern limit.

The Wigeon (Mareca penelope) is also a common winter visitor to India, being most numerous in the North-west. The drake is unmistakable. His creamy-golden forehead and crown stand out

in contrast with the chestruct head and need; the back and flanks are vermiculated grey, whilst sharply-clinford black under tail-coverts and a large white shoulder-patch are points to observe. The female is slighter in build than the Gadswall and more roftous and has the tail slightly-pointed, The Marbled Duck (Marmaronetta augunitaritis) in far securer and more irregular in appearance in Northern India. It is remarkable for the curiously mortied grey and brown plumage of both sexes and the absence of a speculum.

Habit, etc.—Except that it avoids the sea-coast the Gadwall is found in India wherever other ducks are found, in all types of fiver, marsh and task, and it is certainly one of the most abundant species throughout the whole of Continental India. It is usually found in flocks of ten to thirty individuals and is not particularly sky though it is a fine sporting bird, rising quickly and cleanly from the water and thing after the fashion of a Teal, fast and high with noisy wings, which appear more pointed than those of the Mallard. On the water it sits higher than the Mallard, with the stern more elevated. Normally it does not dive, but can do so attendy when wounders.

The call may be described as a chuckling croak. The flesh is very good eating, as the bird is chiefly a vegetarian, and feeds largely on rice, becoming very fat, and in the varied bags of duck that are obtainable in India the Gadwall holds a high place.

In the north the breeding season is about May.

The nest is placed in a hollow of the ground amongst thick vegetation on the edge of water and is made of reeds and grass with a

The normal clutch consists of six to ten eggs, but as many as sixteen have been found. The egg is a regular blunt oval, fine and smooth in texture with a slight gloss; in colour it is a warm yellowish

It measures about 2.26 by 1.51 inches.

THE COMMON TEAL

VETTION CRECCA (Linnæus)

Description.—Length 15 inches. Male: Head and upper neck chestnut, with a broad metallic-green band edged with a buff line running back from the eye and enclosing it, a buff line also connects it with the side of the chin; chin blackish-brown; lower neck all round, back and sides of the body narrowly barred black and white; a broad buff line edged exteriorly with black along each shoulder; runnp brown; upper tails/covers black edged with fulvous; wings brown, the speculum bright emerald-green edged with velvet-black more broadly towards the edge of the wing, and divided by a pale cinnamon and white bar from the lesser wing-coverts; tail brown; breast whitish spotted with black; abdomen white; under the tail a black patch with buf sides.

Female: Upper parts, wings and tail dark brown, the edges of the feathers paler; wings as in the male; lower parts whitish, the sides and lower surface of the head and neck marked with brown

and the breast spotted with brown.

Iris hown; bill dark slaty-grey; legs brownish or greenish-grey. Field Identification.—A very small duck, distinguished from other Indian species by the conspicuous enerald green and black speculum and the pale cinnamon bar on the coverts. The chestnut head and buff-edged green eye-patch, the fine black and white barring of the body and the black and white line down the shoulders of the drake in full plumage are very distinctive.

Dittibution.—The Teal is very generally distributed in Europe, Northern Africa and Asia, breeding in the northern and more temperate parts of this area and moving southwards in winter. Another race occurs in North America. The typical race does not breed anywhere within the confines of the Indian Empire, but in winter it is very generally distributed in India, Burma and Cevlon from about October.

to March, a few being met with from August to May.

The Gargancy (Durayundala guarquichla) is found throughout India and is one of the earliest ducks to arrive, at the end of August. The broad white eye-stripe, the pale blue shoulder to the wing and the elongated scapulars of the male are distinctive. The female resembles the duck Teal but is paler. The Bailal Teal (Nettion frommon), with its green and creamy-white head markings, and the Falcated Teal (Eunetta falcata), with bushy green crest and long siddle-shaped terraines, are both rate stravelers to India and Burna.

Habiti, etc.—The Teal is one of the most abundant and favoured by the sportsan of the many species of wild-flow) which congregate in India in winter. It is found in any type of water or marshy ground, no rivers and lakes, in placed and irrigation, in the muddy village pond or the roadside dirch; its numbers vary with the accommodation from single birds and pairs to docks many hundreds strong, though probably the most usual formation in which to find it is a flock numbering some thirty or forty birds; these associate with other species of duck on the water and when disturbed often fly with them, but the alliance is only temporary, the association of the hour.

The Teal is very largely a night feeder, and is, therefore, one of the species most frequently observed at the flight, and though it feeds a good deal by day numbers will be flushed from thick cover about the edges of water, where they idly doze away the hours of

sunshine in the shade. The bird is chiefly a vegetable feeder, and obtains much of its food on foot, for it is a good walker, dreleging, and sifting the mud in shallow water with its beak. It also feeds white swimming, and though not a diver, except when wounded, is able to "stand on its head" in the water, tail in air, after the fashion of the domestic duck and its wild proceedings the Multiple Comestic Coulombia.

The flight is exceedingly swift and strong, and on the wing the bird is a master of the art of twisting and wheeling. It is not a noisy duck; the note of the male is a low far-sounding krit-krit, while the

female has a short sharp quack.

In the North, about April or May, the Teal breeds in boggy patches on moorland, in the glades of woods or in marshes. The nest is placed on the ground and is a mass of leaves, grasses, bracken and other vegetable matter, lined with down and a few feathers. It is well concealed under tufts of grass or bushes.

The clutch varies from eight to twelve eggs, but as many as twenty have been found. The egg is a broad regular oval, compressed towards one end; the texture is fine, close and smooth and there is a slight close. The colour is a new purplement three times three dwith green.

The egg measures about 1.60 by 1.20 inches.

THE PINTAIL

DAFILA ACUTA (Linnaeus

Description.—Length 22 to 20 inches, of which 5 to 8 inches belongs to the tall. Male: Head and fore-nock unber-bowns; hind-nock black; a white band down each side of the neck from the nape to join the white of the lower parts; upper plumage and sides of the body finely barred and vermiculated with black and white; longer scapulars lancolate in shape, velve-back, edged with light bown; wings greyish-brown, the speculum metallic-green edged on three sides with black, the black being deepest and wident interiorly, a buff bar above the speculum and a white bar below it; upper tail-coverts black and grey; tail brown, the long central feathers black; breast and abdomen white, specified with grey towards the tail; lower flanks buff; a black patch bloow the tail.

Female: Greyish-brown above, streaked paler, with concentric pale bars on the back; wing greyish-brown, the speculum dull and ill-defined with little trace of green or black, and set between two white bars; chin and throat white; lower plumage whitish marked

Iris dark brown; bill bluish-plumbeous, black along the top;

legs greyish-plumbeous.

The neck is long and the central tail-feathers long and pointed.

Field Identification.—A very slender and graceful duck with long

Field Identification—A very stender and gracefur duck with long neck and sharply-pointed tail. The drake is easily distinguished by the brown head, the white line running drown the sides of the neck to the white breast, and the buff apol before the black patts under the tail. In the absence and the buff apol before the black patts under the manner of the state of the state of the state of the state only lifely to be confused with female Gadwall and Wignon. In both of these, however, the speculum has a white inner border formed by the outer who of the next secondary.

Distribution.—The typical race of Pintail breeds in the Northern Hemisphere across Northern Europe, Northern and Central Russia and Northern Asia, migrating south in winter to Central and Southern Europe, Northern Africa and Southern Asia, including India, Ceylon and Burma. American birids have been senanted sub-specifically.

In India it is purely a winter visitor, arriving at the end of October and leaving in March, and it is found practically throughout the

and leaving in March, and it is found practically throughout the country, though it is by no means universally distributed:

Similarity of name must not lead to confusion with the Stiff-tailed Duck (*Exismatura leucocephala*) which is a scarce visitor to North West India. This is a curious brown bird with a white face, and it is remarkable for its diving powers and the habit of swimming with the

tail erect.

Habits, etc.—The Pintail easily holds the first place amongst the ducks of India as a sporting bird, as a good bird for the table, and for grace of shape and carriage. It is always found in flocks, seldom in number less than twenty birds, and often numbering several hundreds; and as by day these flocks keep to fairly open water well in the middle of pleesh where a light growth of weeds and filles gives them a measure of concealment without obstructing their view they are difficult to approach. They tries from the water with one difficulty agreed, and soon rise out of short. It is a positive them a measure of the short of the solid birds of the short one into the shorter's bag.

As divers the Pintalis are of no account but they swim well, sitting very lightly on the water, and with their long necks and pointed tails attain an unmistakable grace and beauty of carriage. They walk well but are seldom seen on land except when feeding on irrigated or flooded land where they are sometimes found in the early mornings; for they feed at night and then leave the safety of the waters, where they spent the day, to visit seeluded creeks and channels and canal irrigation.

They are easily recognised on the wing by their long necks and

tails, and by the low hissing swish of their wings. Usually a silent species, they occasionally utter a soft quack, generally as an alarm-note.

The breeding season in the North is from April to August. The

nest is built on islands in the middle of lakes or in swampy marshes with little open water. It is the usual duck nest of flags and grasses, with an inner lining of feathers and down, placed on the ground and well concealed amongst herbage.

The clutch consists of six to eight eggs. These are very fine and close in texture with a fair amount of gloss; the shells are thinner than those of most ducks. The colour is a pale dull greenish-stone,

In size the egg averages 2.15 by 1.5 inches.

THE SHOVELLER

PATULA CLYPEATA (Linnæus)

Description.—Length 20 inches. Male: Head and upper neck glossy green; bind neck and back dark brown, he feathers pale edged; rump and upper tail-coverts black glossed with green; tail dark brown, the outer feathers broadly edged with white; sides of the wings bluish-grey divided by a broad white bar from the green speculum; scapulars long and pointed, bluish-grey and black, with white shaft-streaks; wing-quills dark brown; lower neck and breast with a line to the scapulars pure white; lower breast and abdomne chestrux, with a white patch on the lower flanks; under the tail a patch of black glossed with green.

Female: Upper plumage brown, each feather with a pale reddish border, and most of the feathers, except of the head and neck, with concentric rufous bands; sides of the wings dull bluish-grey divided by a bread white bar from the green specular; wings and tail-quille brown; lower plumage brownish-buff more rufous on the abdomen, the breachers of the break that the standard with crescentic brown and the breast and flasts, marked with crescentic brown bars which fade away towards the

Iris yellow, brown in the female; bill black in adult male, dark brown with the lower mandible dull orange in females and young males; legs orange-red.

The bill is long and flat, twice as broad at the tip as at the base, and the sides of the upper mandible are much turned down near the tip; the sides are set with fine exposed plates (lamellæ) like the teeth

Field Identification.—Heavy spatulate beak, conspicuous in flight and at rest, separates this duck from all other Indian species. The full-plumaged male is also easy to recognise, with the green head, white breast and scapular line and the chestnut under parts, but it must be remembered that this plumage is not usually fully developed

in India till February. In both sexes the green speculum divided by a white bar from the blue-grey shoulder are distinctive.

Distribution.-Breeds throughout the greater part of Europe, Northern Asia and North America, migrating in winter to the Mediterranean Basin, Egypt, Tropical Africa, and most of Southern Asia to China and Japan; also in America southwards to the West

Indies and Central America. In winter it is found throughout India, until the end of April. Common in the North, it grows scarcer towards the South.

Habits, etc.-The Shoveller is usually found singly, in pairs or in parties of ten or a dozen individuals, and therefore, though common,



Fig. 104-Shoveller (nat. size)

it is never so abundant numerically as the other species of ducks which collect into large flocks. It is a specialised form, its bill being developed for the purpose of sieving mud and muddy water for the minute living organisms and aquatic seeds that they contain; for this reason it is less seldom found on the open clearer waters than in the shallower, more dirty and weedy jheels and ponds where, as a rule, it feeds about the margins. It is more likely than other ducks to be found about small and filthy village ponds, and at such places if undisturbed it becomes very tame and bold, living in them for weeks and feeding on all sorts of miscellaneous foods. Small wonder is it then that the flesh of the Shoveller is rank and unpleasant to eat and that experienced sportsmen neglect the bird. Nor is it interesting to shoot: it is easily approached when on the water and rises heavily and awkwardly, taking some time to get under way, though once in the air it flies well and strongly. It is a poor swimmer and diver, as is only to be expected of a bird that spends most of its time with its head and neck under water straining mud; it is, therefore, easy to

As a rule a silent bird, it occasionally utters a creaking quack or

In the North the breeding season is from April onwards. The nest is built in meadows near water or in marshy ground, and is

well concealed in herbage on the ground. It is rather a bulky structure

Eight or nine eggs are usually laid, but sixteen have been recorded. texture with a fair gloss. The colour is yellowish-grey with either a green or cream tinge.

The average size is 2.1 by 1.45 inches.

Nyroca Ferina (Linnæus) (Plate xxi, Fig. 1, opposite page 504)

Description .- Length 18 inches. Male: Head and neck rufouschestnut; base of neck all round with upper back and breast glossyblack; lower back and a patch above and below the tail black; the quill-feathers which are brown, greyer in the wings and darker

Female: Head, neck and breast rufous-brown, blackish on the crown and mixed with greyish-white on the cheeks and throat; back, shoulders and wing-coverts grey, more or less vermiculated with black; rump and upper tail-coverts blackish; wing- and tail-feathers brown; lower parts sullied white turning brown on the flanks and

Iris reddish-yellow; bill bluish-grey, the tip and base black; legs bluish-grey, the webs blackish.

Field Identification .- A squat, heavily-built duck. The drake is easily distinguished by the vermiculated grey plumage ending sharply in black on the breast and tail, and the bright chestnut head. The duck is a dull grey and brown bird with whitish throat and abdomen, which lacks the white wing-bar of the White-eye and

Distribution,-The Pochard breeds throughout a large area of Northern and Central Europe and across Siberia. It is largely migratory, and in winter occurs throughout temperate Europe, Egypt, North-western Africa and Southern Asia to China and Japan. Another sub-species is found in North America.

In India the Pochard arrives about the end of October, but is not common till November, and it leaves again about March, a few staying into April. It is found throughout Northern India in large numbers, growing scarcer towards the south, being very rare in

The Red-created Pechard (Netta rajina) is a winter visitor to Northern and Central India. The male may be known by the combination of red head and crimson bill, glossy black under parts, white wing-bar and white shoulder-parts. The female is much duller and lacks the black under parts, but the dull red hill and the contrast between the dusky crown and whitish checks and throat are marked.

Habit, etc.—With the Pochard we have the first of the diving ducks which obtain the greater part of their food, consisting of the expansion of the property of their food, consisting of the expansion, therefore, the fact that this species in India is mainly metallic than the larger jheels and tanks out in the open deeper water free from surface vegetation. It mostly feed by night, and by day reast in flocks on the water, riding with the body low in the water very much down by the stern, and the head and neck drawn in on the body. It swims well, but seldom visits the land, where it walks but poorly.

In rising from the water the Pochard is slow and awkward, but once on the wing it is a straight and strong filer with quick beats of the short wings which make a peculiar rustling sound. The flocks travel in a mass and not in formation, and mount high into the air. The note is a harsh crosk kurri-kurr.

The breeding season in the north is in May,

The nest is built in rough grass or reed-beds either on the land at the edge of the water or actually on the water. On land it consists of a hollow in the ground roughly lined with grass and reeds together with feathers and down; but out amongst the reeds on the water it is a most solid structure like he nest of a Con.

The clutch consists of eight or ten eggs, but fourteen have been recorded. The eggs are very regular broad ovals, smooth in texture but dull and glossless. In colour they are a dull greenish-grey.

They measure about 2.30 by 1.70 inches.

THE WHITE-EVE

Nyroca Nyroca (Güldenstäd

Description.—Length 16 inches. Male: Head, neck and breast dull chestnut, a white spot on the chin and a blackish-brown collar round the lower neck joining the upper back; upper plumage blackishbrown; wings dark brown, a broad white band running through the flight-feathers; tail dark brown; lower plumage white, sulfied with brown on the lower abdomen, the sides of the body reddish-brown means deduce to remark the well.

Female: Similar but duller; head and neck reddish-brown; upper plumage brown; the reddish-brown of the breast is mixed with white and is not sharply divided from the white of the lower plumage as in the male.

Iris white in male, brown in female; bill bluish-black; legs plumbeous-grey, webs blackish.

Field Identification.—A small dark duck with white under parts and a white bar through the wing; the white eye of the drake contrasting with the reddish-brown bead is distinctive. Pernales and part of the confused with those of the Tufted Duck, a heavier bird with less white in the wing and less rufous in

Distribution.—The typical race breeds in the Basin of the Mediterranean in Central and Eastern Europe and in Western Asia as far as Kashmir. In winter it extends into Africa as far south as the Canaries and Abyssinia, and in Asia to India and Arrakan.

In India proper the typical race arrives about the end of October and leaves again in March. It is very abundant in Continental India, but gradually grows rarer southwards, and is not found at all in Southern

The Eastern race, N. n. baeri, which breeds in Eastern Siberia and winters in China and Japan occurs as far west as Bengal. In this the head is black or blackish-brown glossed with green.

The Tufted Dock (Viyese fulique) is a common winter visitor to all with a long expert the extense south of India. The druke is glossy black with a long separate creat and white under parts, appearing on the continuous with the Galden-eye (Bucephale clange), a raw winter wintor to northern India, whose made also looks virid black and white but may be known by a circular white patch below the eye. Another black and white buf is the druke of the Knew (Mergulia albellus) in which the head is white with a broken black line through the eye. This also winters in northern India, white sommoner.

Habits, etc.-The White-eye may be found on every type of water, fresh or salt, either in the hills or plains or along the sea-coast. It is by preference, however, a bird of the more secluded and weedy iheels. where the whole shores are overgrown with herbage and occasional patches of open water are surrounded by water-lilies and rushes.

the members of a flock scatter amongst the cover to rest and rise only

two or three at a time.

Although retiring in its habits the White-eye is neither shy nor difficult to approach; it rises rather badly for a duck and at first flies low over the water, though once on the wing it travels fast and high, It is a most expert swimmer and diver, and one dropped wounded into the weedy water that it frequents is seldom brought to bag.

seeds, of insects and their larvæ, small fish and especially molluscs, The flesh in consequence varies, and is sometimes excellent for the

table, sometimes almost uneatable.

The harsh call rather resembles that of the Pochard, and is variously

expressed by the syllables kek-kek-kek or koor-kirr-kirr.

In Kashmir the breeding season commences in April, and the majority of eggs are laid about June. It was at one time customary for the fishermen to collect large cargoes of ducks' eggs, both of the White-eye and Mallard, for sale in the markets of Srinagar, but this has now been stopped.

The nest is built either on the ground or in the water amongst rushes and other vegetation; it is a moderate-sized structure of dry rushes and sedges with an inner lining of finer grasses and weeds; feathers and down are padded round the eggs. The egg is a regular perfect oval, smooth and fine in texture with very little gloss. The colour is a delicate tint of café-au-lait.

The average size is 2.1 by 1.5 inches.

THE LITTLE GREBE

PODICEPS RUFICOLLIS (Pallas)

Description.-Length 9 inches. Sexes alike. Summer plumage: Top of the head and hind-neck blackish-brown; face round the bill and chin blackish; sides of the head and of the neck, throat and fore-neck chestnut; upper parts dark brown, the outer flight-feathers paler brown with their bases white and the inner flight-feathers almost entirely white; breast, flanks and under the tail dark brown mixed with white; abdomen silky white.

In winter plumage the crown and hind-neck are brown, the chin

white, and the chestnut of the neck is replaced by rufous,

Iris red-brown; bill black with a white tip, the base greenishyellow; legs blackish-green, inside of the tarsus pale olive-green.

Bill compressed and sharply pointed; tail quite rudimentary, consisting of short downy feathers; legs compressed, with broad lateral lobes coalescing at the base and not contracted at the joints as in the Coot. The plumage is very silky and waterproof.

Field Identification.-The smallest of the true water-birds of India, swimming low in the water and disappearing under it at the

least provocation. Its size at once distinguishes it.

Distribution.-The Little Grebe has a very wide distribution, being found in various races throughout the greater part of Europe,



found in India, Burma and Ceylon, distinguished from the typical race by the white bases to the primaries and the greater amount of white in the secondaries, is also found in Persia, Turkestan and portions of Africa. Within our limits it is found everywhere on suitable water both in the plains and in the hills up to 5000 feet, and in the Nilgiris up to 8000 feet. It is partly resident and partly migratory.

The Great Crested Grebe (Podiceps cristatus) is found in Northern India as a fairly common winter visitor to the larger jheels and in some areas it undoubtedly breeds. It is much larger than the Little Grebe. and in the water appears as a slender long-necked sharp-beaked bird, dark above and white below. In the breeding season conspicuous black "ear-tufts" on the crown, chestnut tippet and flanks make it a Habits, etc.-The Little Grebe or Dabchick is an example of a

family which is highly specialised for a purely aquatic life. It is found in tanks and the deeper jheels. It may be said virtually never to land on terra firma; except when travelling it spends its whole life in the water swimming like a Cormorant, very low in the beam and ready to dive at the least sign of danger. Much of its food in the way of small fishes is captured under water, for it dives well and can swim far beneath the surface; though it also feeds on the surface and there procures vegetable matter, small molliuse and water insects. Quantities of their own feathers are found in the gizzards of Grebes, either with or without pebbles, and they are apparently swallowed for the same digestive purposes for which the latter are swallowed by most brids.

It rises from the water with some difficulty owing to the comparatively small size of its wings, but once in the air travels well and fast. On setting it strikes the water with the breast, which is well cushioned with fat, down and feathers, instead of thrusting forward its feet as a brake after the fashion of ducks and geese.

The wing-feathers in autumn are shed simultaneously as in the ducks, so that for a short period the bird is quite flightless.

Ordinarily it is found singly or in small parties, but on the Manchar Lake in Sind it gathers in winter into enormous flocks, hundreds strong. Numbers breed on the same water, but their nesting habits can hardly be called colonial.

The breeding season extends from May to September.

The nest is a mere mass of water-weed, based on a tuft of grass or aquatic plants, but practically floating in water as a rule. On this three to seven eggs are laid, and they are covered over with a pad of weed by the parent brid when she leaves the nest, however hurriedly. The combined heat of the sun and the fermentation of this decaying egetable matter in the water is largely responsible for the incubation of the eggs which commences as soon as the first one is laid, with of the young for correct between the ages of the young for correct between the ages of the young for the young control of the young for correct between the ages of the young for the young the time to be a proper to the young t

The egg is a moderately elongated oval, much pointed at both ends; the texture is fairly close and chalky with little or no gloss. When first laid the eggs are unmarked white, faintly tinged with blue or green, but they rapidly become discoloured to dark earthy-brown.

In size they measure about 1:40 by 1 inch.

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